Gilles Consulting
Brian K. Gilles
425-822-4994

EVALUATION OF SELECTED TREES AT

AT NORTHWEST UNIVERSITY
5520 108th Avenue NE
Kirkland, WA 98033

February 19, 2016

Includes May 25, 2016 Supplemental Letter "Summary of Trees on the Slope North of the Athletic Fields" appended to this report.

PREPARED FOR:

John Jordon
Northwest University
C/o Gelotte Hommas Architecture
5520 108th Avenue NE
Kirkland, WA 98033

PREPARED BY:

GILLES CONSULTING
Brian K. Gilles, Consulting Arborist
ISA Certified Arborist # PN-0260A
ASCA Registered Consulting Arborist # RCA-418
ISA TRAQ Qualified
ISA TRAQ Certified Instructor

fax: 425-822-6314
email: bkgilles@comcast.net
P.O. Box 2366 Kirkland, WA 98083

CONTENTS

EXECUTIVE SUMMARY

178 trees were evaluated and documented as part of this report. They can be summarized as follows:

- Species:
  - 18 different species are present in these two areas.
  - 10 of the 18 species are non-native landscape trees.
  - 8 of the 18 species are native trees.
- Significance:
  - All 178 trees are greater than 6.0 inches and are all *Significant Trees.*
- Viability:
  - 166 of the 178 trees are *Viable Trees*.
  - 11 of the 178 trees are *Non-Viable.*
  - 1 of the 178 trees is questionable.
    - If it is retained, it should receive further testing.

ASSIGNMENT

John Jordon of Northwest University, working with Gelotte Hommas, contracted with Gilles Consulting to evaluate selected trees at the Northwest University campus in Kirkland, Washington. A portion of the property is being re-developed around the Ness, Pecota and the Northwest Pavilion. The City of Kirkland requires an extensive analysis of the trees as part of the permit process. This report provides the analysis. The information in this report must be utilized to create a Tree Plan as required by Chapter 95 of the Kirkland Code.

METHODOLOGY

To evaluate the trees, as well as to prepare this report, I drew upon my 30+ years of experience in the field of arboriculture and my formal education in natural resources management, dendrology, forest ecology, plant identification, and plant physiology. I followed the protocol of the International Society of Arboriculture (ISA) for tree risk assessment. Published in 2011, the *Best Management Practices, Tree Risk Assessment, ANSNI A300 Part 9* was developed to aid in the interpretation of professional standards and guide work practices based upon current science and technology. Using this process, now called the *Tree Risk Assessment Qualification,* or TRAQ for short, I performed a Level Two assessment which included looking at the overall health of the tree as well as the site conditions. This is a scientifically based process to look at the entire site, surrounding land and soil, as well as a complete look at the tree itself.

In examining each tree, I looked at such factors as: size, vigor, canopy and foliage condition, density of needles, injury, insect activity, root damage and root collar health,

crown health, evidence of disease-causing bacteria, fungi or virus, dead wood and hanging limbs.

Tree Tags

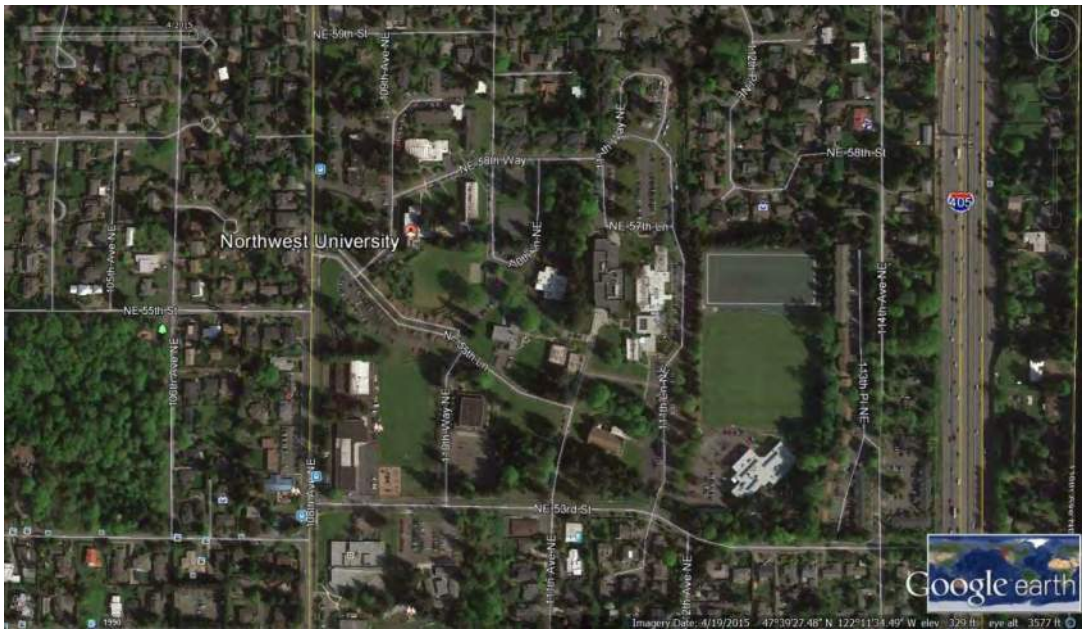
The trees were tagged and numbered 601 through 778. The tags are made of shiny aluminum approximately one inch by three inches in size and are attached to the tree with staples and a one foot strip of brightly colored survey tape. The tags were placed as high as possible to minimize their removal and were generally placed on the backsides of the trees as inconspicuously as possible. Please refer to *Attachment 1, Site Survey* for an orientation to the site and the approximate location of the trees.

Missing Trees

There were a few trees that were not included on the survey. They were labeled with the next number in the sequence and then their approximate location was indicated on the included site plan. These trees may or may not need to be surveyed to determine their exact location in relation to the proposed site improvements and their retainability.

In addition, there were a few trees shown on the site survey that are no longer present. In a few cases stumps were present. In a few cases there was no evidence remaining. Therefore, on *Attachment 1, Site Survey with Tree Numbers,* a red "X" was placed on the symbol with the letters, "NLP" written next to it. NLP stands for no longer present. I recommend that they be taken off the survey to avoid any potential confusion.

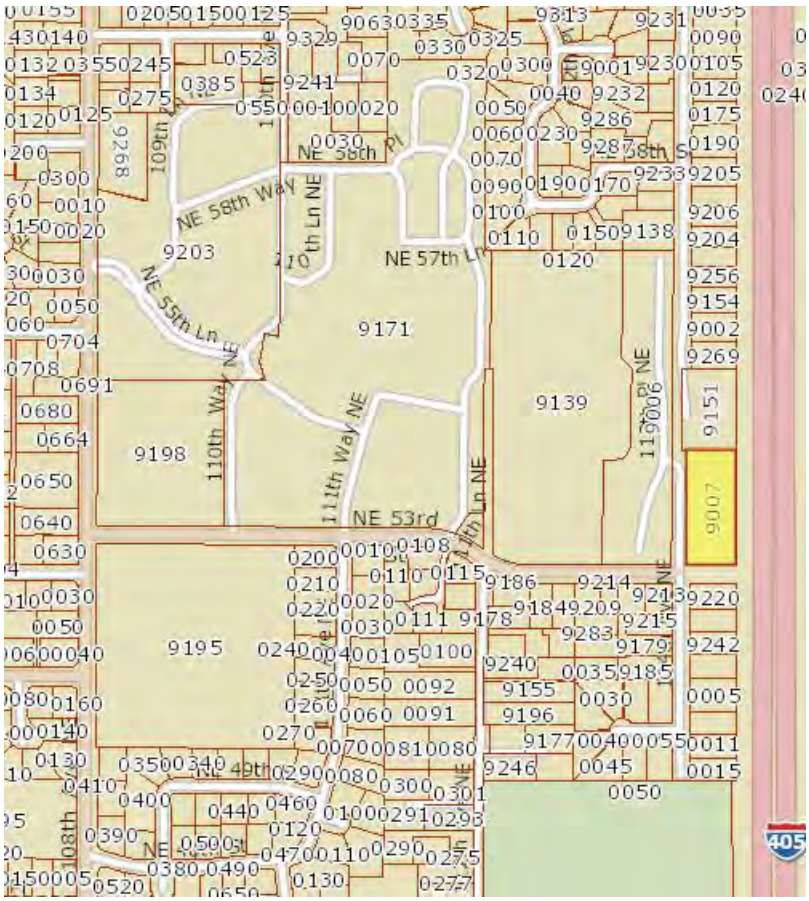
Photo # 1: A Google Earth image of Northwest University and the surrounding neighborhood. The large block of green forest east of 106th Ave NE is Carillon Woods Park. I-405 is to the east.



OBSERVATIONS

The campus of Northwest University occupies the southeast corner of the intersection of NE 53rd Street and 108th Avenue NE in Houghton. The campus extends east up the slope to Interstate 405 in a jagged manner. The campus extends from NE 53rd Street to parcels north of NE 58th Street and a few parcels that extend all the way to NE 59th Street. The proposed project are around Building 10, the Ness Building, Building 11, The Pecota Student Center, and Building 13, the Northwest Pavilion. The 178 trees observed, evaluated, and documented in this report are around these buildings.

Photo # 2: This is a screen shot from the King County Assessor's web site.



In an effort to present the information and conclusions for each tree in a manner that is clear and easy to understand, as well as to save paper, I have included a detailed spreadsheet, *Attachment 2, Tree Inventory/Condition Spreadsheet*. All the same information from the ISA Tree Hazard Form is included in this spreadsheet and the attached glossary. The descriptions on the spreadsheet were left brief in order to include

as much pertinent information as possible and to make the report manageable. The attached glossary provides a detailed description of the terms used in the spreadsheet and in this report. It can be found in *Attachment 3, Glossary*. A brief review of these terms and descriptions will enable the reader to rapidly move through the spreadsheet and better understand the information.

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Right-of-Way Trees

There are no trees in the rights-of-way impacted by the proposed redevelopments.

Trees on Adjacent Properties

There are no trees on adjacent properties impacted by the proposed improvements to the subject property.

Trees on the Subject Property

- Species:
  - There were 18 different species and cultivars documented in the 178 trees included in this report. They are:

American Beech, *Fagus grandiflora*
Austrian Black Pine, *Pinus nigra*
Big Leaf Maple, *Acer macrophyllum*
Colorado Blue Spruce, *Picea pungens*
Deodar Cedar, *Cedrus deodara*
Douglas Fir, *Pseudotsuga menziezii*
Flowering Cherry, *Prunus sp.*
Leyland Cypress, x Cupressocyparis leylandii
Northern Catalpa, *Catalpa bignoides*
Paperbark Birch, *Betula papyrifera*
Pacific Dogwood, *Cornus nuttallii*
Pacific Madrone, *Arbutus menziesii*
Sweetgum, *Liquidambar styraciflua*
Thundercloud Plum, *Prunus cerasifera*
Vine Maple, *Acer circinatum*
White Fir, *Abies concolor*
Western Hemlock, *Tsuga heterophylla*
Western Red Cedar, *Thuja plicata*

- Significance:
  - All 178 trees measured greater than 6.0 inches at 4.5 feet above the average ground level.
  - Therefore, they are all *Significant Trees*.

- Viability
  - 166 of the 178 trees are rated as being in Fair, Good, Very Good, or Excellent condition.
    - Therefore, they are *Viable Trees*.
  - 11 of the 178 trees are rated as either being in Poor Condition or Dying.
    - They are all *Non-Viable.*
  - 1 of the 178 trees are questionable. It is tree # 630:
    - Tree # 630: is a majestic 47.9-inch Douglas Fir along NE 55th Lane south of Building 12, Millard Hall.
    - It has a large fungal fruiting body of a virulent pathogen at its base on the north side.
    - If there is any construction activity near the tree, if the trees around it are removed, and/or if there is any change in its appearance, it should receive further testing.

- Recommendations
  - The 167 *Viable Trees* appear to have the current health, vigor, and internal stored reserves that they are worthy of consideration for retention.
    - Those trees within the foot prints of the proposed new buildings and expansions will need to be removed.
    - Additional trees within grading for the improvements and utilities will likely need to be removed also.
  - The 10 *Non-Viable Trees* are recommended for removal.
    - The larger ones are a potential safety issue.
      - This includes trees # 321, 702, 711, 756, & 759
    - The smaller one are not a safety concern but they are never going to improve.
      - This includes trees # 627, 719, 749, 752, & 757.
      - They might as well be removed and replaced now as part of this project so decades in the future they will be valuable landscape amenities.
  - Tree 630 is worthy of retention for now but further testing is recommended.
    - Testing would be doing multiple resistance drill tests at or near the base to determine extend of decay extending from the roots up into the base of the trunk.
    - From this information an informed decision can be made as to whether to retain the tree as it is, trim the tree to reduce storm loading, or remove the tree altogether.

Tree Protection Measures

For those trees chosen for retention to survive the stresses placed upon them in the construction process, tree protection must be planned in advance of equipment arrival on site. If tree protection is not planned integral with the design and layout of the project, the trees will suffer needlessly and possibly die. With proper preparation, often costing little or nothing extra to the project budget, trees can survive and thrive after construction. This is critical for tree survival because damage prevention is the single most effective treatment for trees on construction sites. Once trees are damaged, the treatment options available are limited.

The minimum Tree Protection Measures in *Attachment 4*, *Tree Protection Measures* are on three separate sheets that can be copied and introduced into all relevant documents such as site plans, permit applications and conditions of approval, and bid documents so that everyone involved is aware of the requirements. These Tree Protection Measures are intended to be generic in nature. They will need to be adjusted to the specific circumstances of your site that takes into account the location of improvements and the locations of the trees.

WAIVER OF LIABILITY

There are many conditions affecting a tree's health and stability, which may be present and cannot be ascertained, such as, root rot, previous or unexposed construction damage, internal cracks, stem rot and more which may be hidden. Changes in circumstances and conditions can also cause a rapid deterioration of a tree's health and stability. Adverse weather conditions can dramatically affect the health and safety of a tree in a very short amount of time. While I have used every reasonable means to examine these trees, this evaluation represents my opinion of the tree health at this point in time. These findings do not guarantee future safety nor are they predictions of future events.

The tree evaluation consists of an external visual inspection of an individual tree's root flare, trunk, and canopy from the ground only unless otherwise specified. The inspection may also consist of taking trunk or root soundings for sound comparisons to aid the evaluator in determining the possible extent of decay within a tree. Soundings are only an aid to the evaluation process and do not replace the use of other more sophisticated diagnostic tools for determining the extent of decay within a tree.

As conditions change, it is the responsibility of the property owners to schedule additional site visits by the necessary professionals to ensure that the long-term success of the project is ensured. It is the responsibility of the property owner to obtain all required permits from city, county, state, or federal agencies. It is the responsibility of the property owner to comply with all applicable laws, regulations, and permit conditions. If there is a homeowners association, it is the responsibility of the property

owner to comply with all Codes, Covenants, and Restrictions (CC&R's) that apply to tree pruning and tree removal.

This tree evaluation is to be used to inform and guide the client in the management of their trees. This in no way implies that the evaluator is responsible for performing recommended actions or using other methods or tools to further determine the extent of internal tree problems without written authorization from the client. Furthermore, the evaluator in no way holds that the opinions and recommendations are the only actions required to insure that the tree will not fail. A second opinion is recommended. The client shall hold the evaluator harmless for any and all injuries or damages incurred if the evaluator's recommendations are not followed or for acts of nature beyond the evaluator's reasonable expectations, such as severe winds, excessive rains, heavy snow loads, etc.

This report and all attachments, enclosures, and references, are confidential and are for the use of the client concerned. They may not be reproduced, used in any way, or disseminated in any form without the prior consent of the client concerned and Gilles Consulting.

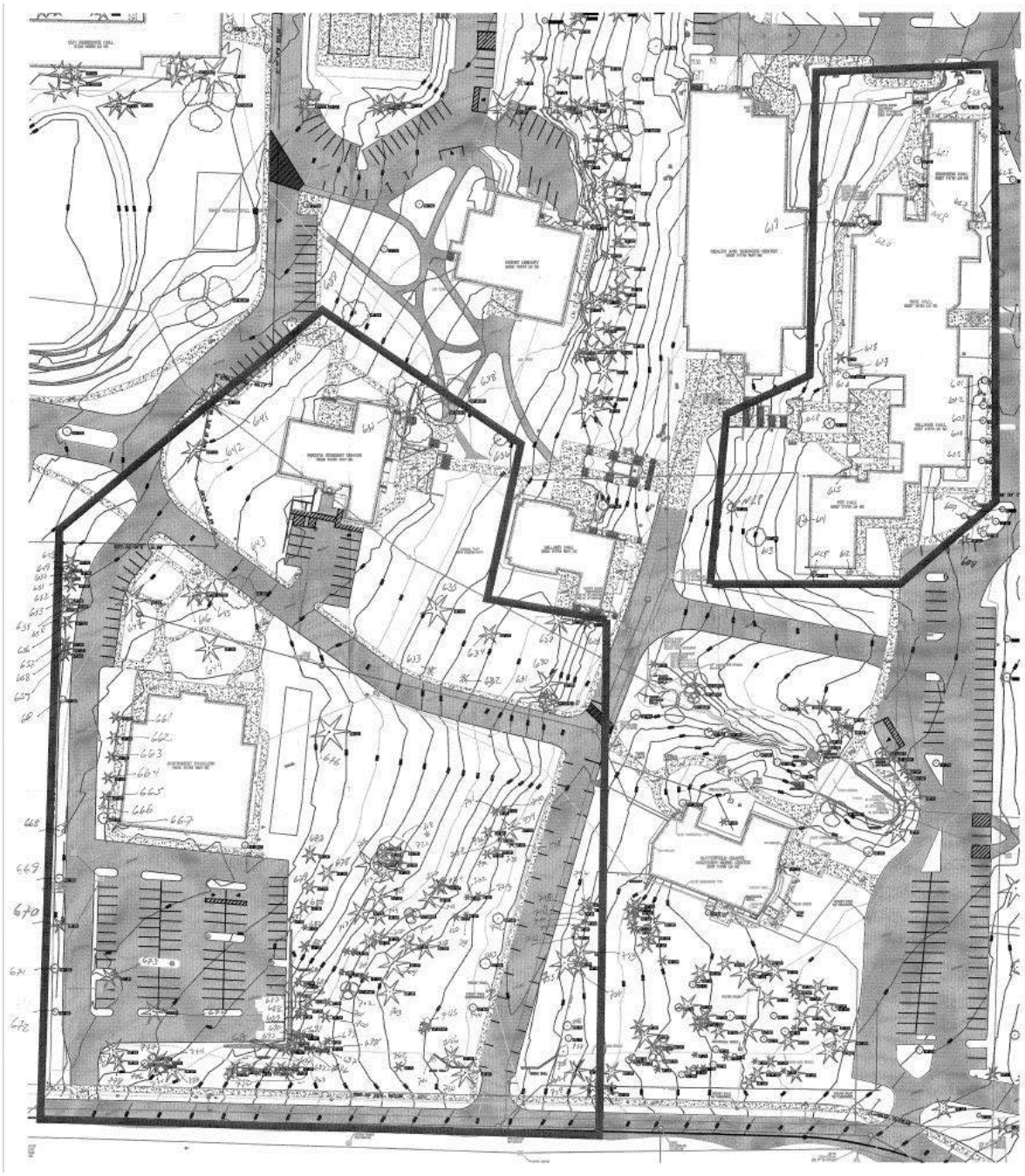
Thank you for calling Gilles Consulting for your arboricultural needs.

Sincerely,

Brian K. Gilles, Consulting Arborist
ISA Certified Arborist # PN-0260A
ASCA Registered Consulting Arborist # RCA-418
ISA TRAQ Qualified
ISA TRAQ Certified Instructor

ATTACHMENTS

ATTACHMENT 1 - SITE SURVEY W/TREE #'S



ATTACHMENT 2 - TREE INVENTORY/CONDITIONS SPREADSHEET

ABBREVIATED LEGEND--SEE GLOSSARY IN REPORT ATTACHMENTS FOR GREATER DETAIL

#1 ***Property:*** Whether the tree is on or off the Subject Property, or a Right-of-Way tree.

#2 ***Tree Location:*** Relative placement of the tree on the Subject Property.

#3 ***Tree #:*** The unique tag number of each tree.

#4 ***Species:***

AB/Fg	American Beech, *Fagus grandiflora*
ABP/Pn	Austrian Black Pine, *Pinus nigra*
BLM/Am	Big Leaf Maple, *Acer macrophyllum*
CBS/Pp	Colorado Blue Spruce, *Picea pungens*
DC/Cd	Deodar Cedar, *Cedrus deodara*
DF/Pm	Douglas Fir, *Pseudotsuga menziezii*
FlCh/Psp	Flowering Cherry, *Prunus sp.*
LC/XCl	Leyland Cypress, x Cupressocyparis leylandii
NC/Cb	Northern Catalpa, *Catalpa bignoides*
PbB/Bp	Paperbark Birch, *Betula papyrifera*
PDw/Cn	Pacific Dogwood, *Cornus nuttallii*
PM/Am	Pacific Madrone, *Arbutus menziesii*
SG/Ls	Sweetgum, *Liquidambar styraciflua*
TcP/Pc	Thundercloud Plum, *Prunus cerasifera*
VM/Ac	Vine Maple, *Acer circinatum*
WF/Ac	White Fir, *Abies concolor*
WH/Th	Western Hemlock, *Tsuga heterophylla*
WRC/Tp	Western Red Cedar, *Thuja plicata*

#5 ***DBH:*** Trunk diameter @ 4.5' above average ground level.

#6 ***Tree Credit:*** This is based upon Table 95.35.1, Page 12, Chapter 95 of the Kirkland Municipal Code.

#7 ***Drip Line:*** The radius, the distance from the trunk to the furthest branch tips.

#8 ***Limits of Disturbance:*** The boundary between the area of minimum protection around a tree and the allowable site disturbance as determined by a qualified professional.

#9 ***LCR:*** *Live Crown Ratio* - the amount of live canopy expressed as a % of the entire tree height

#10 ***Symmetry:*** General shape of canopy and weight distribution of the tree around the trunk.

#11 ***Foliage:*** General description of foliage density that indicates tree health and vigor.

#12 ***Crown Condition:*** The most important external indication of tree health and vigor.

#13 ***Trunk:*** Description of trunk condition or abnormalities if any.

#14 ***Root Collar:*** The base of the tree where the trunk flares into the roots--deformities or problems are noted here.

#15 ***Roots:*** Root problems are noted here.

#16 ***Comments:*** Additional observations about the tree's condition.

#17 ***Significance:*** A "significant" tree is at least 6" in diameter measured at 4.5' above the average ground level.

#18 ***Current Health Rating:*** A description of health from dead, dying, poor, fair, good, very good, to excellent.

#19 ***Viability*** : A significant tree that is in good health with a low risk of failure due to structural defects, is relatively wind firm if isolated or remains as part of a grove, and is a species that is suitable for its location.

#20 ***Recommendation:*** This is an estimate of whether or not the tree is of sufficient health, vigor, and structure to consider retaining.

Trees highlighted in *Red Ink* are those trees that are *Non-Viable*. They are not candidates for retention. They should be considered for remvoal and replacement.

2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
TREE LOCATION	TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	% LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	RECOMMENDATION
Ness Bldg.	601	SG/Ls	12.5"	2.0	22'	22'	22'	To side walk	To bldg.	80%	Gen. Sym.	GBS/GSE	Healthy	Typical	Girdling root on 50%	Restricted	Girdling roots are on west and south and east sides.	Significant	Good	Viable	Potential to retain with Tree Protection Measures
Ness Bldg.	602	SG/Ls	15.3"	3.0	20'	20'	20'	To side walk	To bldg.	80%	Gen. Sym.	GBS/GSE	Healthy	Typical	NAD	Restricted		Significant	Good	Viable	Potential to retain with Tree Protection Measures

2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
TREE LOCATION	TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	% LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	RECOMMENDATION
Ness Bldg.	603	SG/Ls	13.2"	2.0	14'	14'	14'	To side walk	To bldg.	80%	Gen. Sym.	GBS/GSE	Healthy	Typical	NAD	Restricted		Significant	Good	Viable	Potential to retain with Tree Protection Measures
Ness Bldg.	604	SG/Ls	10.7"	1.0	16'	16'	16'	To side walk	To bldg.	80%	Gen. Sym.	GBS/GSE	Average	Typical	NAD	Restricted		Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Ness Bldg.	605	SG/Ls	12.8"	2.0	15'	15'	15'	To side walk	To bldg.	75%	Gen. Sym.	GBS/GSE	Healthy	Center rot	Base rot	Root Rot	Calloused wound on north side base up 6 feet. Carpenter Ant infestation.	Significant	Very good	Viable	Potential to retain with Tree Protection Measures
Ness Bldg.	606	SG/Ls	10.7"	1.0	12'	12'	12'	To side walk	To bldg.	85%	Gen. Sym.	GBS/GSE	Healthy	Typical	NAD	Restricted		Significant	Very good	Viable	Potential to retain with Tree Protection Measures
Ness Bldg.	607	SG/Ls	10.7"	1.0	14'	14'	To side walk	To side walk	14'	85%	Min. Asym.	GBS/GSE	Healthy	Typical	NAD	Restricted		Significant	Very good	Viable	Potential to retain with Tree Protection Measures
Ness Bldg.	608	WRC/ Tp	13.0"	2.0	12'	Surround the entire planter bed all the way around trees 608 – 11 with a tree protection fence if these trees are to remain.				75%	Gen. Sym.	ABS/ASE	Average	Straight	NAD	Restricted	Growing in planter bed by sidewalk and parking lot curb.	Significant	Very good	Viable	Potential to retain with Tree Protection Measures
Ness Bldg.	609	SG/Ls	14.5"	3.0	18'					85%	Gen. Sym.	ABS/ASE	Average	Typical	NAD	Restricted	Growing in planter bed by sidewalk and parking lot curb.	Significant	Good	Viable	Potential to retain with Tree Protection Measures

2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
TREE LOCATION	TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	% LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	RECOMMENDATION
Ness Bldg.	610	SG/Ls	13.2"	2.0	18'					90%	Min. Asym.	ABS/ASE	Average	Typical	NAD	Restricted	Growing in planter bed by sidewalk and parking lot curb.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Ness Bldg.	611	SG/Ls	10.1"	1.0	14'					70%	Maj. Asym.	ABS/ASE	Average	Typical	NAD	Restricted	Growing in planter bed by sidewalk and parking lot curb.	Significant	Good	Viable	Potential to retain with Tree Protection Measures
Ness Bldg.	612	VM/Ac	9.7"	1.0	14'	To Bldg.	14'	14'	14'	65%	Maj. Asym.	ABS/ASE	Average	Fork at base	NAD	Restricted	Base is 3 feet south of the building. Trunk diameters are 5.7", 4.7", 3.2", 2.8", & 4.6", equals a single trunk of 9.7 inches.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Ness Bldg.	613	BLM/Am	40.6"	16.0	45'	45'	45'	45'	45'	90%	Min. Asym.	ABS/ASE	Broken Out	Fork at 6' & 10', Typical	NAD	-	Storm damage in mid canopy. Carpenter ant infestation. Woodpecker activity. Dead branches in canopy. Rot pockets in branch collar wounds.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Ness Bldg.	614	Ap/Msp	6.3"	1.0	10'	n/a	n/a	n/a	n/a	90%	Maj. Asym.	PBS/PSE	Regen - Weak	Fork at 4.5', Serpentine	Swollen	-		Significant	Good	Viable	Potential to retain with Tree Protection Measures

2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
TREE LOCATION	TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	% LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	RECOMMENDATION
Ness Bldg.	615	Beech ?	6.8"	1.0	12'	To side walk	To Bldg.	12'	12'	65%	Min. Asym.	ABS/ASE	Regen - Average	Fork at 9'	NAD	Root Rot	Sapsucker activity.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Ness Bldg.	616	FICh/P sp	11.7"	1.0	18'	To Bldg.	To planter bed	To Bldg.	To side walk	80%	Maj. Asym.	ABS/ASE	Average	Fork at 3'	Partially exposed	Root Rot	Two trunks measure 8.3" & 8.3 " = single trunk of 11.7 inches. Growing in planter bed near corner of building. Surface roots.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Ness Bldg.	617	CBS/P p	8.3"	1.0	6'	6'	6'	To side walk	To bldg.	75%	Min. Asym.	Dense	Healthy	Fork at 3'	previous failure	Previous failure	Spider mite infestation.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Ness Bldg.	618	ABP/P n	14.3"	3.0	16'	16'	16'	To side walk	To bldg.	85%	Min. Asym.	Dense	Healthy	Leans over building, serpentin e	previous failure	Previous failure	Roots are restricted.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Ness Bldg.	619	TcP/P c	12.0"	1.0	20'	20'	20'	To side walk	20'	90%	Maj. Asym.	ABS/ASE	Average	Fork at 3', Typical	NAD	Restricted	Trunk diameters are 10.4" & 5.9" = single trunk of 12.0 inches. Rot pockets in branch collar wounds. Sapsucker activity.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures

2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
TREE LOCATION	TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	% LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	RECOMMENDATION
Ness Bldg.	620	NC/Cb	28.6"	10.0	26'	26'	To side walk and building.			60%	Min. Asym.	ABS/ASE	Average	Slight lean SW, Typical	NAD	Restricted	Open wound NE side from 5.5 feet to 7 feet and on the north side from 7 feet to 8.5 feet with decay. If this tree is considered for retention, I strongly recommend a Resistograph test of the lower trunk.	Significant	Poor	Non-Viable	Potential to retain with Tree Protection Measures
Ness Bldg.	621	PbB/Bp	16.4"	0.0	24'	To side walk	To side walk	To Bldg.	To side walk	85%	Maj. Asym.	PBS/PSE	Broken Out	Typical	NAD	Restricted	Rot pockets in the branch collar wounds.	Significant	Poor	Non-viable	Remove for Safety
Ness Bldg.	622	WRC/Tp	23.1"	7.0	12'	To curb	12'	To curb	To side walk	95%	Gen. Sym.	Dense	Healthy	Fork at 3'	NAD	Restricted	Trunk diameters 16.7" & 15.9" = single trunk of 23.1 inches.	Significant	Very good	Viable	Potential to retain with Tree Protection Measures
Ness Bldg.	623	SG/Ls	15.0"	3.0	22'	22'	To side walk	22'	22'	85%	Gen. Sym.	PBS/PSE	Healthy	Straight	NAD	Restricted		Significant	Very good	Viable	Potential to retain with Tree Protection Measures
Ness Bldg.	624	SG/Ls	11.9"	1.0	18'	18'	To side walk	18'	18'	85%	Min. Asym.	ABS/ASE	Average	Fork a base	NAD	Restricted	Trunk diameters ae 9.8" & 6.7" = single trunk of 11.9 inches.	Significant	Good	Viable	Potential to retain with Tree Protection Measures
Ness Bldg.	625	SG/Ls	11.6"	1.0	22'	To Drive Lane & 22'	22'	To curb	To bldg.	80%	Gen. Sym.	ABS/ASE	Average	Straight	NAD	Restricted		Significant	Good	Viable	Potential to retain with Tree Protection Measures

2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
TREE LOCATION	TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	% LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	RECOMMENDATION
Ness Bldg.	626	SG/Ls	11.8"	1.0	14'	To Drive Lane & 22'	To Curb	To curb	To bldg.	95%	Gen. Sym.	ABS/ASE	Average	Fork at 16', Typical	NAD	Restricted	Open wound south side from 5.5 to 6 feet with good wound wood growth.	Significant	Good	Viable	Potential to retain with Tree Protection Measures
Ness Bldg.	627	FICh/P sp	6.6"	0.0	13'	13'	13'	13'	13'	75%	Gen. Sym.	ABS/ASE	Average	Center rot	Partially expose, Base Rot	Restricted	Calloused wound east side from 1 to 4 feet. Cherry Bark Tortrix. Gummosis. Surface roots.	Significant	Poor	Non-viable	Consider Removal and replacement
So. of Millard Hall	628	WRC/ Tp	15.4"	3.0	12'	To the stairs	12'	12'	12'	80%	Gen. Sym.	Dense	Healthy	Straight	NAD	Restricted		Significant	Very good	Viable	Potential to retain with Tree Protection Measures
So. of Millard Hall	629	BAC/C a	36.8"	14.0	32'	32'	32'	32'	32'	95%	Min. Asym.	Dense	Healthy	Slight lean SW, Typical	Exposed	Restricted		Significant	Very good	Viable	Potential to retain with Tree Protection Measures
So. of Millard Hall	630	DF/P m	47.9"	0.0	36'	36'	To side walk	To side walk	36'	98%	Min. Asym.	Dense	Healthy	Straight	NAD	Restricted	*Phaeollus swinitzii* fruiting body at base on north side. Early Bark Beetle infestation.	Significant	??	Non-viable	Resistograph Drill test of base.

2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
TREE LOCATION	TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	% LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	RECOMMENDATION
So. of Millard Hall	631	DF/Pm	44.6"	18.0	32'	32'	To side walk	To side walk	32'	98%	Maj. Asym.	Dense	Healthy	Fork at 5' w/ Included bark to base	NAD	Restricted	East trunk is forked at 13 feet. Historic sap flow on southwest side from 12 to base. Large old branch collar wound is cause of sap flow. Early Bark Beetle infestation.	Significant	Very good	Viable	Potential to retain with Tree Protection Measures
So. of Millard Hall	632	DF/Pm	39.6"	15.0	32'	32'	To side walk	32'	32'	80%	Min. Asym.	Dense	Healthy	Straight	NAD	Restricted	Dead branches in canopy. Storm damage with multiple broken and hanging limbs in canopy. Early bark beetle infestation.	Significant	Very good	Viable	Potential to retain with Tree Protection Measures
So. of Millard Hall	633	DF/Pm	62.9"	21.0	28'	28'	To side walk	28'	28'	85%	Min. Asym.	Dense	Healthy	Fork at 1'	NAD	Restricted	Historic sap flow on north side and of east trunk from 26 feet to the base. Appears to be a compression fracture only. Calloused wound south side base up 5.5 feet with historic sap flow. Looks to have been construction or vehicular damage. Early Bark Beetle infection.	Significant	Very good	Viable	Potential to retain with Tree Protection Measures

2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
TREE LOCATION	TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	% LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	RECOMMENDATION
So. of Millard Hall	634	DF/Pm	26.0"	8.0	20'	20'	20'	20'	20'	95%	Gen. Sym.	Dense	Healthy	Straight	NAD	-		Significant	Excellent	Viable	Potential to retain with Tree Protection Measures
So. of Millard Hall	635	IC/Cd	33.7"	12.0	12'	12'	12'	12'	12'	98%	Gen. Sym.	Dense	Healthy	Fork at 4'	NAD	-	Storm damage in mid canopy.	Significant	Very good	Viable	Potential to retain with Tree Protection Measures
So. of Millard Hall	636	KCh, Ps 'K'	25.9"	8.0	16'	16'	16'	16'	16'	50%	Gen. Sym.	ABS/ASE	Regen - Average	Grafted	Grafted	Surface	Growing in flower bed surrounded by grass and sidewalk in front of the student union building.	Significant	Good	Viable	Potential to retain with Tree Protection Measures
Around Pecota	637	BLM/Am	45.5"	18.0	39'	To side walk	To Retaining wall	To side walk	To bldg.	80%	Maj. Asym.	ABS/ASE	Average	Fork at 3.5', Center Rot	Base rot	Root Rot, Restricted	Open wound SE side 2 feet to 7 feet with decay. Carpenter Ant infestation. Dead branches in canopy. Rot pockets in branch collar wounds.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Around Pecota	638	BLM/Am	42.7"	17.0	45'	To side walk	To Retaining wall	To side walk	To bldg.	85%	Maj. Asym.	ABS/ASE	Healthy	Fork at 5.5'	NAD	Restricted	If trees 636 and 637 stay as a unit they can both stay. If one or the other is removed, they both need to be removed.	Significant	Good	Viable	Potential to retain with Tree Protection Measures

2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
TREE LOCATION	TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	% LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	RECOMMENDATION
Around Pecota	639	BLM/Am	50.3"	21.0	45'	45'	45'	45'	45'	80%	Gen. Sym.	ABS/ASE	Average	Forked	NAD	-	Dead branches in canopy.	Significant	Very good	Viable	Potential to retain with Tree Protection Measures
Around Pecota	640	FICh/Psp	9.2"	1.0	14'	Circle the edge of the planter bed at the hard surfaces.				55%	Min. Asym.	PBS/PSE	Weak	Fork at 3'	NAD	Restricted		Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Around Pecota	641	DF/Pm	38.8"	15.0	22'	To side walk	22'	22'	To side walk	98%	Gen. Sym.	Dense	Healthy	Straight	NAD	Restricted		Significant	Excellent	Viable	Potential to retain with Tree Protection Measures
Around Pecota	642	ESp/Pe	29.2"	10.0	22'	22'	22'	22'	To curb	98%	Gen. Sym.	Dense	Regen - Healthy	Straight	NAD	Restricted	Sap sucker activity.	Significant	Excellent	Viable	Potential to retain with Tree Protection Measures
No. of Nw Pavilion	643	BLM/Am	71.4"	21.0	46'	To side walk	46'	To side walk	To side walk	85%	Min. Asym.	ABS/ASE	Average	Fork at 14'	Partially exposed	Restricted		Significant	Good	Viable	Potential to retain with Tree Protection Measures
No. of Nw Pavilion	644	DF/Pm	41.8"	16.0	28'	28'	28'	28'	28'	75%	Gen. Sym.	Dense	Regen - Healthy	Kink at 40%	Exposed	Restricted	Sap flow on south side from 9 feet to base. Appears to be a compression fracture only. Carpenter Ant infestation in bark only. Woodpecker activity in bark only.	Significant	Good	Viable	Potential to retain with Tree Protection Measures

2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
TREE LOCATION	TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	% LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	RECOMMENDATION
No. of Nw Pavilion	645	DF/Pm	35.2"	13.0	26'	To side walk	26'	26'	26'	60%	Gen. Sym.	Dense	Healthy	Straight	NAD	Restricted		Significant	Good	Viable	Potential to retain with Tree Protection Measures
No. of Nw Pavilion	646	DF/Pm	29.6"	10.0	26'	To side walk	26'	26'	26'	55%	Min. Asym.	Dense	Healthy	Serpentine	NAD	Root Rot	Early bark beetle infestation.	Significant	Good	Viable	Potential to retain with Tree Protection Measures
No. of Nw Pavilion	647	DF/Pm	47.6"	19.0	32'	32'	32'	32'	To side walk	80%	Gen. Sym.	Average	Healthy	Straight	NAD	Restricted		Significant	Very good	Viable	Potential to retain with Tree Protection Measures
Between 110th & Fence	648	WRC/Tp	18.7"	5.0	20'	20'	20'	To curb	To Fence	90%	Maj. Asym.	Dense	Healthy	Fork at 11'	NAD	-	Open wound on SE trunk from 11 to 16 feet with decay.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Between 110th & Fence	649	RO/Qr	17.6"	4.0	34'	34'	34'	To curb	To Fence	85%	Maj. Asym.	ABS/ASE	Average	Fork at 10', Typical	NAD	-		Significant	Good	Viable	Potential to retain with Tree Protection Measures
Between 110th & Fence	650	DF/Pm	17.1"	4.0	22'	22'	22'	To curb	To Fence	90%	Maj. Asym.	Dense	Healthy	Straight	NAD	-		Significant	Very good	Viable	Potential to retain with Tree Protection Measures
Between 110th & Fence	651	WRC/Tp	10.3"	1.0	12'	12'	12'	To curb	To Fence	90%	Min. Asym.	Dense	Healthy	Straight	NAD	-		Significant	Very good	Viable	Potential to retain with Tree Protection Measures

2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
TREE LOCATION	TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	% LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	RECOMMENDATION
Between 110th & Fence	652	DF/Pm	18.7"	5.0	24'	24'	24'	To curb	To Fence	95%	Min. Asym.	Dense	Healthy	Straight	NAD	Restricted	Early bark beetle infestation.	Significant	Very good	Viable	Potential to retain with Tree Protection Measures
Between 110th & Fence	653	WRC/Tp	15.2"	3.0	16'	16'	16'	To curb	To Fence	95%	Maj. Asym.	Dense	Healthy	Fork t 85%	NAD	Restricted		Significant	Very good	Viable	Potential to retain with Tree Protection Measures
Between 110th & Fence	654	DF/Pm	18.9"	5.0	24'	24'	24'	To curb	To Fence	95%	Min. Asym.	Average	Healthy	Kink at 24'-26'	NAD	Restricted	Early bark beetle infestation.	Significant	Good	Viable	Potential to retain with Tree Protection Measures
Between 110th & Fence	655	RO/Qr	15.3"	3.0	22'	22'	22'	To curb	To Fence	90%	Maj. Asym.	ABS/ASE	Average	Leans W	NAD	Restricted		Significant	Good	Viable	Potential to retain with Tree Protection Measures
Between 110th & Fence	656	DF/Pm	18.2"	5.0	20'	20'	20'	To curb	To Fence	98%	Min. Asym.	Dense	Healthy	Kink at 16'	NAD	-	Early bark beetle infestation.	Significant	Very good	Viable	Potential to retain with Tree Protection Measures
Between 110th & Fence	657	DF/Pm	14.4"	3.0	20'	20'	20'	To curb	To Fence	95%	Maj. Asym.	Dense	Healthy	Slight Bow	NAD	Restricted	Girdling root on west side-- constricting approximately 15% of the circumference.	Significant	Very good	Viable	Potential to retain with Tree Protection Measures
Between 110th & Fence	658	DF/Pm	16.7"	4.0	22'	22'	22'	To curb	To Fence	95%	Min. Asym.	Dense	Healthy	Straight	NAD	Restricted	Early bark beetle infestation.	Significant	Very good	Viable	Potential to retain with Tree Protection Measures

2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
TREE LOCATION	TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	% LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	RECOMMENDATION
Between 110th & Fence	659	RO/Qr	15.9"	3.0	30'	30'	30'	To curb	To Fence	95%	Maj. Asym.	ABS/ASE	Healthy	Slight Lean W	NAD	Restricted		Significant	Good	Viable	Potential to retain with Tree Protection Measures
Between 110th & Fence	660	RO/Qr	15.6"	3.0	36'	36'	36'	To curb	To Fence	95%	Gen. Sym.	GBS/GSE	Healthy	Slight Bow	NAD	Restricted		Significant	Very good	Viable	Potential to retain with Tree Protection Measures
W. of Nw Pavilion	661	ZWRC /Ztp	15.2"	3.0	12'	12'	12'	To side walk	To curb	98%	Gen. Sym.	Dense	Healthy	Straight	NAD	Restricted	Growing in planter between drive lane and the NW Pavilion.	Significant	Excellent	Viable	Potential to retain with Tree Protection Measures
W. of Nw Pavilion	662	ZWRC /Ztp	13.0"	2.0	12'	12'	12'	To side walk	To curb	98%	Gen. Sym.	Dense	Healthy	Straight	NAD	Restricted	Growing in planter between drive lane and the NW Pavilion.	Significant	Excellent	Viable	Potential to retain with Tree Protection Measures
W. of Nw Pavilion	663	ZWRC /Ztp	15.0"	3.0	12'	12'	12'	To side walk	To curb	98%	Gen. Sym.	Dense	Healthy	Straight	NAD	Restricted	Growing in planter between drive lane and the NW Pavilion.	Significant	Excellent	Viable	Potential to retain with Tree Protection Measures
W. of Nw Pavilion	664	ZWRC /Ztp	15.6"	3.0	12'	12'	12'	To side walk	To curb	98%	Gen. Sym.	Dense	Healthy	Straight	NAD	Restricted	Growing in planter between drive lane and the NW Pavilion.	Significant	Excellent	Viable	Potential to retain with Tree Protection Measures
W. of Nw Pavilion	665	ZWRC /Ztp	13.7"	2.0	12'	12'	12'	To side walk	To curb	98%	Gen. Sym.	Dense	Healthy	Straight	NAD	Restricted	Growing in planter between drive lane and the NW Pavilion.	Significant	Excellent	Viable	Potential to retain with Tree Protection Measures

2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
TREE LOCATION	TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	% LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	RECOMMENDATION
W. of Nw Pavilion	666	ZWRC /Ztp	14.1"	3.0	12'	12'	12'	To side walk	To curb	98%	Gen. Sym.	Dense	Healthy	Straight	NAD	Restricted	Growing in planter between drive lane and the NW Pavilion.	Significant	Excellent	Viable	Potential to retain with Tree Protection Measures
W. of Nw Pavilion	667	PM/Am	25.3"	8.0	22'	22'	22'	To side walk	To curb	40%	Gen. Sym.	Some Fusarium Wilt	Average	Fork at 9', Typical	Possible Base Rot	Possible Root Rot	Open wound SW side base up 3 feet with decay.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Between 110th & Fence	668	RO/Qr	10.5"	1.0	20'	20'	20'	To curb	To Fence	85%	Min. Asym.	ABS/ASE	Average	Serpentine	Not observed	Restricted	Tag tied to Juniper shrub near trunk.	Significant	Good	Viable	Potential to retain with Tree Protection Measures
Between 110th & Fence	669	RO/Qr	22.0"	6.0	28'	28'	28'	To curb	To Fence	95%	Min. Asym.	GBS/GSE	Healthy	Slight Bow	Not observed	Restricted	Tag tied to Juniper shrub near trunk.	Significant	Good	Viable	Potential to retain with Tree Protection Measures
Between 110th & Fence	670	DF/Pm	23.4"	7.0	25'	25'	25'	To curb	To Fence	95%	Gen. Sym.	Dense	Healthy	Serpentine	NAD	Restricted	Tag tied to Juniper shrub near trunk.	Significant	Very good	Viable	Potential to retain with Tree Protection Measures
Between 110th & Fence	671	RO/Qr	24.0"	7.0	28'	28'	28'	To curb	To Fence	90%	Gen. Sym.	GBS/GSE	Healthy	Fork at 8', Typical	NAD	Restricted	Tag tied to Juniper shrub near trunk.	Significant	Very good	Viable	Potential to retain with Tree Protection Measures
Between 110th & Fence	672	RO/Qr	12.0"	2.0	16'	16'	16'	To curb	To Fence	90%	Min. Asym.	ABS/ASE	Average	Fork at 14', Typical	NAD	Restricted	Tag tied to Juniper shrub near trunk.	Significant	Good	Viable	Potential to retain with Tree Protection Measures

2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
TREE LOCATION	TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	% LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	RECOMMENDATION
Pavilion Parking	673	DF/Pm	27.9"	9.0	18'	To the edge of the planter.				65%	Min. Asym.	Dense	Flagging	Straight	NAD	Restricted	Sap flow on east side from 20 feet to base. Appears to be a compression fracture only.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Pavilion Parking	674	DF/Pm	30.1"	11.0	24'	To the edge of the planter.				95%	Gen. Sym.	Dense	Healthy	Kink at 65%	NAD	Restricted		Significant	Good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	675	WRC/Tp	34.3"	13.0	20'	To curb	To side walk	20'	To curb	95%	Gen. Sym.	Dense	Regen - Healthy	Straight	NAD	Restricted		Significant	Good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	676	DF/Pm	57.6"	21.0	32'	32'	32'	32'	32'	85%	Gen. Sym.	Dense	Healthy	Straight	NAD	-	Storm damage in mid canopy. Sap flow on South side. Calloused crack from base up 9 feet. Carpenter Ant infestation and Woodpecker activity in bark only.	Significant	Good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	677	DF/Pm	18.9"	5.0	20'	20'	20'	20'	To parking lot	95%	Gen. Sym.	Dense	Healthy	Straight	NAD	-		Significant	Excellent	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	678	DF/Pm	23.5"	7.0	20'	20'	20'	20'	To parking lot	95%	Gen. Sym.	Average	Healthy	Straight	NAD	Surface	Early bark beetle infestation.	Significant	Good	Viable	Potential to retain with Tree Protection Measures

2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
TREE LOCATION	TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	% LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	RECOMMENDATION
So. of 110th & No. of 53rd	679	DF/Pm	17.0"	4.0	18'	18'	18'	18'	To parking lot	90%	Gen. Sym.	Dense	Healthy	Straight	NAD	-		Significant	Excellent	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	680	DF/Pm	15.4"	3.0	18'	18'	18'	18'	To parking lot	90%	Gen. Sym.	Dense	Healthy	Straight	NAD	Surface		Significant	Excellent	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	681	PbB/Bp	10.3"	1.0	7'	7'	7'	7'	To parking lot	95%	Min. Asym.	PBS/PSE	Weak	Slightly Serpentine	NAD	Restricted		Significant	Fair	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	682	WRC/Tp	7.9"	1.0	9'	9'	9'	9'	To retaining wall	95%	Gen. Sym.	Dense	Healthy	Straight	NAD	-		Significant	Excellent	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	683	DF/Pm	17.2"	4.0	20'	20'	20'	20'	To retaining wall	85%	Gen. Sym.	Dense	Healthy	Straight	NAD	Restricted		Significant	Excellent	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	684	DF/Pm	11.6"	1.0	16'	16'	16'	16'	To retaining wall	90%	Min. Asym.	Dense	Healthy	Straight	NAD	Restricted		Significant	Very good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	685	WRC/Tp	8.7"	1.0	10'	10'	10'	10'	To retaining wall	80%	Min. Asym.	Dense	Healthy	Straight	NAD	Restricted		Significant	Excellent	Viable	Potential to retain with Tree Protection Measures

2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
TREE LOCATION	TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	% LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	RECOMMENDATION
So. of 110th & No. of 53rd	686	DF/Pm	7.0"	1.0	12'	12'	12'	12'	To retaining wall	80%	Maj. Asym.	Average	Average	Straight	NAD	Restricted		Significant	Good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	687	DF/Pm	17.3"	4.0	20'	20'	20'	20'	To retaining wall	90%	Min. Asym.	Dense	Healthy	Straight	NAD	Restricted		Significant	Very good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	688	DF/Pm	19.8"	5.0	22'	22'	22'	22'	To retaining wall	90%	Min. Asym.	Dense	Healthy	Leans W	NAD	Restricted		Significant	Very good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	689	DF/Pm	10.8"	1.0	12'	12'	12'	12'	To retaining wall	95%	Maj. Asym.	Average	Healthy	Straight	NAD	Restricted		Significant	Very good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	690	DF/Pm	10.8"	1.0	12'	12'	12'	12'	To retaining wall	85%	Maj. Asym.	Average	Healthy	Straight	NAD	Restricted		Significant	Good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	691	DF/Pm	11.1"	1.0	12'	12'	12'	12'	To retaining wall	80%	Min. Asym.	Dense	Healthy	Straight	NAD	Restricted		Significant	Good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	692	DF/Pm	11.4"	1.0	14'	14'	14'	14'	To retaining wall	80%	Maj. Asym.	Dense	Healthy	Straight	NAD	Restricted		Significant	Good	Viable	Potential to retain with Tree Protection Measures

2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
TREE LOCATION	TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	% LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	RECOMMENDATION
So. of 110th & No. of 53rd	693	DF/Pm	12.0"	2.0	14'	14'	14'	14'	To retaining wall	80%	Maj. Asym.	Dense	Healthy	Straight	NAD	Restricted		Significant	Good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	694	DF/Pm	7.8"	1.0	10'	10'	10'	10'	To retaining wall	60%	Maj. Asym.	Average	Healthy	Serpentine	NAD	Restricted		Significant	Fair	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	695	DF/Pm	13.3"	2.0	16'	16'	16'	16'	To retaining wall	95%	Min. Asym.	Dense	Healthy	Straight	NAD	Restricted		Significant	Very good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	696	DF/Pm	12.1"	2.0	14'	14'	14'	14'	To retaining wall	90%	Maj. Asym.	Dense	Healthy	Serpentine	NAD	-	Small wound at 5.5 feet with sap flow.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	697	DF/Pm	7.6"	1.0	12'	12'	12'	12'	To retaining wall	80%	Maj. Asym.	Dense	Healthy	Leans NW	NAD	-		Significant	Fair	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	698	DF/Pm	20.2"	6.0	26'	26'	26'	26'	To retaining wall	90%	Min. Asym.	Dense	Healthy	Straight	NAD	Surface		Significant	Very good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	699	DF/Pm	9.7"	1.0	14'	14'	14'	14'	To retaining wall	85%	Maj. Asym.	Dense	Healthy	Leans NW	NAD	-		Significant	Good	Viable	Potential to retain with Tree Protection Measures

2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
TREE LOCATION	TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	% LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	RECOMMENDATION
So. of 110th & No. of 53rd	700	DF/Pm	13.8"	2.0	16'	16'	16'	16'	To retaining wall	95%	Min. Asym.	Dense	Healthy	Straight	NAD	Surface		Significant	Very good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	701	DF/Pm	9.3"	1.0	10'	10'	10'	10'	To retaining wall	90%	Gen. Sym.	Dense	Healthy	Slight Bow	NAD	-	Sap flow from wound on south side of trunk ad 35 feet.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	702	BLM/Am	30.3"	0.0	32'	32'	32'	32'	To retaining wall	85%	Min. Asym.	PBS/PSE	Weak	Fork at Base, Center Rot	Base rot	Root Rot	Trunk diameters are 17.3", 10.9", 21.7", 3.0" & 4.8" = single trunk of 30.3 inches. Carpenter Ant infestation. Dead branches in canopy. Rot pockets in branch collar wounds.	Significant	Poor	Non-viable	Remove for Safety
So. of 110th & No. of 53rd	703	WRC/Tp	38.1"	15.0	24'	24'	24'	24'	24'	95%	Gen. Sym.	Dense	Healthy	Straight	Possible Base Rot	-	Open wound south side 2 feet to 6 feet with decay. Carpenter Ant infestation.	Significant	Good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	704	DF/Pm	42.2"	17.0	34'	34'	34'	34'	34'	75%	Gen. Sym.	Dense	Regen - Healthy	Straight	NAD	-	Sap flow east side from 12 feet to base. Early Bark Beetle infestation.	Significant	Very good	Viable	Potential to retain with Tree Protection Measures

2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
TREE LOCATION	TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	% LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	RECOMMENDATION
So. of 110th & No. of 53rd	705	WRC/ Tp	14.0"	3.0	12'	12'	12'	12'	12'	85%	Gen. Sym.	Dense	Healthy	Straight	NAD	-		Significant	Excellent	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	706	DF/P m	7.2"	1.0	10'	10'	10'	10'	10'	80%	Gen. Sym.	Average	Average	Slightly Serpentine	NAD	-	Sap flow from branch collar wounds.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	707	DF/P m	8.3"	1.0	12'	12'	12'	12'	12'	80%	Maj. Asym.	Average	Over topped	Slightly Serpentine	NAD	-		Significant	Fair	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	708	DF/P m	11.6"	1.0	12'	12'	12'	12'	12'	70%	Min. Asym.	Dense	Healthy	Straight	NAD	-		Significant	Good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	709	DF/P m	8.4"	1.0	10'	10'	10'	10'	10'	80%	Gen. Sym.	Dense	Healthy	Straight	NAD	-		Significant	Good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	710	WRC/ Tp	24.6"	8.0	16'	16'	16'	16'	16'	95%	Min. Asym.	Average	Healthy	Straight	NAD	-		Significant	Good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	711	WRC/ Tp	24.4"	0.0	16'	16'	16'	16'	16'	95%	Gen. Sym.	Thin	Weak	Center rot	Base rot	Root Rot	Open wound base up 6 feet. Carpenter Ant infestation. Woodpecker activity.	Significant	Poor	Non-viable	Remove for Safety

2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
TREE LOCATION	TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	% LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	RECOMMENDATION
So. of 110th & No. of 53rd	712	WRC/ Tp	8.0"	1.0	9'	9'	9'	9'	9'	70%	Min. Asym.	Dense	Healthy	Center rot	Probable Base Rot	-	Open wound NE side base up 18 inches with decay.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	713	WRC/ Tp	30.7"	11.0	24'	24'	24'	24'	24'	95%	Min. Asym.	Dense	Healthy	Straight	NAD	-		Significant	Very good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	714	WRC/ Tp	22.9"	7.0	20'	20'	20'	20'	20'	95%	Min. Asym.	Dense	Healthy	Straight	NAD	-		Significant	Very good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	715	WRC/ Tp	33.2"	12.0	20'	20'	20'	20'	20'	98%	Gen. Sym.	Dense	Healthy	Straight	NAD	-		Significant	Excellent	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	716	WRC/ Tp	36.8"	14.0	24'	24'	24'	24'	24'	95%	Maj. Asym.	Dense	Healthy	Straight	NAD	-	Sapsucker activity.	Significant	Excellent	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	717	WRC/ Tp	33.0"	12.0	22'	22'	22'	22'	22'	95%	Min. Asym.	Dense	Healthy	Center rot	Base rot	Possible Root Rot	Calloused crack 3 to 9 feet.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	718	WRC/ Tp	22.4"	7.0	12'	12'	12'	12'	12'	95%	Min. Asym.	Dense	Healthy	Slight Bow	NAD	-		Significant	Good	Viable	Potential to retain with Tree Protection Measures

2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
TREE LOCATION	TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	% LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	RECOMMENDATION
So. of 110th & No. of 53rd	719	DF/Pm	12.9"	0.0	12'	12'	12'	12'	12'	40%	Maj. Asym.	Thin	Suppressed	Bowed, Center Rot	Base rot	Root Rot	Calloused crack on NE side from 4 to 14 feet.	Significant	Poor	Non-viable	Remove for Safety
So. of 110th & No. of 53rd	720	PDw/Cn	22.9"	7.0	22'	22'	22'	22'	22'	90%	Maj. Asym.	ABS/ASE	Over topped	Typical	NAD	-	Trunk diameters are 9.5, 13.5", 10.1", 11.7", 2.7", & 1.9" = single trunk of 22.9 inches. Stump sprouts.	Significant	Good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	721	DF/Pm	33.9"	12.0	26'	26'	26'	26'	26'	85%	Min. Asym.	Dense	Regen - Healthy	Fork at 75%	NAD	-		Significant	Very good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	722	DF/Pm	23.0"	7.0	20'	20'	20'	20'	20'	70%	Min. Asym.	Average	Average	Bowed	NAD	-	Early bark beetle infestation.	Significant	Good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	723	DF/Pm	25.6"	8.0	24'	24'	24'	24'	24'	60%	Min. Asym.	Dense	Regen - Healthy	Kink at 75%	NAD	-		Significant	Fair	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	724	DF/Pm	22.3"	7.0	18'	18'	18'	18'	18'	75%	Maj. Asym.	Dense	Regen - Average	Kink at 75%	NAD	-	Early bark beetle infestation.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures

2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
TREE LOCATION	TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	% LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	RECOMMENDATION
So. of 110th & No. of 53rd	725	DF/Pm	28.2"	10.0	22'	22'	22'	22'	22'	70%	Min. Asym.	Dense	Regen - Healthy	Kink at 75%	NAD	-	Popping bark. Ground flower on Nor side. Carpenter Ant infestation and Woodpecker activity in bark only.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	726	BLM/Am	26.0"	8.0	20'	20'	20'	20'	20'	85%	Gen. Sym.	ABS/ASE	Average	Fork at 9' w/ included bark down 5'	NAD	-		Significant	Fair	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	727	WRC/Tp	7.0"	#N/A	9'	9'	9'	9'	9'	60%	Gen. Sym.	Average	Average	Straight	NAD	-		Significant	Good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	728	DF/Pm	38.6"	15.0	28'	28'	28'	28'	28'	75%	Gen. Sym.	Dense	Healthy	Straight	NAD	-		Significant	Very good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	729	DF/Pm	22.0"	6.0	20'	20'	20'	20'	20'	80%	Min. Asym.	Average	Regen - Average	Previously topped at 85%, Slight bow	NAD	-	Early bark beetle infestation.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	730	DF/Pm	10.7"	1.0	12'	12'	12'	12'	12'	885%	Gen. Sym.	Average	Average	Slight Bow	NAD	-		Significant	Fair	Viable	Potential to retain with Tree Protection Measures

2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
TREE LOCATION	TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	% LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	RECOMMENDATION
So. of 110th & No. of 53rd	731	DF/Pm	8.4"	1.0	10'	10'	10'	10'	10'	65%	Maj. Asym.	Dense	Healthy	Straight	NAD	-		Significant	Fair	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	732	WRC/Tp	7.4"	1.0	10'	10'	10'	10'	10'	80%	Gen. Sym.	Dense	Regen - Healthy	Fork at 9'	NAD	-		Significant	Good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	733	DF/Pm	11.4"	1.0	12'	12'	12'	12'	12'	90%	Min. Asym.	Average	Average	Straight	NAD	-		Significant	Good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	734	DF/Pm	12.2"	2.0	12'	12'	12'	12'	12'	95%	Min. Asym.	Dense	Healthy	Slightly Serpentine	NAD	-	Sap flow at branch collar wounds.	Significant	Very good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	735	DF/Pm	13.0"	2.0	12'	12'	12'	12'	12'	95%	Maj. Asym.	Dense	Healthy	Slight Bow	NAD	-	Sap flow at branch collar wounds.	Significant	Very good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	736	DF/Pm	16.3"	4.0	12'	12'	12'	12'	12'	98%	Min. Asym.	Dense	Healthy	Straight	NAD	-		Significant	Excellent	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	737	DF/Pm	7.8"	1.0	9'	9'	9'	9'	9'	45%	Min. Asym.	Average	Average	Straight	NAD	-		Significant	Fair	Viable	Potential to retain with Tree Protection Measures

2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
TREE LOCATION	TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	% LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	RECOMMENDATION
So. of 110th & No. of 53rd	738	WRC/ Tp	10.4"	1.0	9'	9'	9'	To side walk	9'	85%	Maj. Asym.	Dense	Healthy	Straight	NAD	-		Significant	Very good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	739	WRC/ Tp	31.1"	11.0	24'	24'	24'	To side walk	24'	98%	Gen. Sym.	Dense	Healthy	Straight	NAD	-	Trunk has unusual swelling form 9 feet to base.	Significant	Very good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	740	DF/P m	10.1"	1.0	16'	16'	16'	To side walk	16'	#### #	Maj. Asym.	Dense	Healthy	Serpentine	NAD	-		Significant	Good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	741	DF/P m	9.7"	1.0	12'	12'	12'	To side walk	12'	85%	Min. Asym.	Dense	Healthy	Slightly Serpentine	NAD	Restricted		Significant	Good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	742	BLM/A m	29.2"	10.0	22'	22'	22'	To side walk	22'	65%	Gen. Sym.	ABS/ASE	Average	Fork at 12', Typical	NAD	Restricted	Side pruned for utilities. Hanger. Dead branches in canopy.	Significant	Good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	743	BLM/A m	28.4"	10.0	20'	20'	20'	To side walk	20'	65%	Min. Asym.	ABS/ASE	Average	Typical	NAD	Restricted	Surface root on SW side with mower damage. Girdling root impacting app. 15% of circumference.	Significant	Good	Viable	Potential to retain with Tree Protection Measures

2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
TREE LOCATION	TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	% LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	RECOMMENDATION
So. of 110th & No. of 53rd	744	BLM/Am	20.1"	6.0	26'	26'	26'	To side walk	26'	90%	Gen. Sym.	ABS/ASE	Regen - Average	Previously Topped at 16'	NAD	Restricted	Dead branches in canopy.	Significant	Good	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	745	DF/Pm	29.5"	10.0	20'	20'	20'	20'	20'	80%	Min. Asym.	Average	Regen - Weak	Fork at 2' w/ included bark to base	Internal structural weakness	-	Previously topped at 90%.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
So. of 110th & No. of 53rd	746	DF/Pm	27.4"	9.0	20'	20'	20'	To side walk	20'	85%	Maj. Asym.	Dense	Regen - Healthy	Straight	NAD	Restricted	Sap flow from branch collar wounds.	Significant	Good	Viable	Potential to retain with Tree Protection Measures
East of 110th	747	DF/Pm	18.6"	5.0	20'	20'	20'	20'	To curb	95%	Gen. Sym.	Dense	Healthy	Slightly Serpentine	NAD	Restricted		Significant	Very good	Viable	Potential to retain with Tree Protection Measures
East of 110th	748	WRC/Tp	10.2"	1.0	12'	12'	12'	12'	To curb	85%	Min. Asym.	Dense	Healthy	Straight	NAD	Restricted		Significant	Good	Viable	Potential to retain with Tree Protection Measures
East of 110th	749	PbB/Bp	9.8"	0.0	10'	10'	10'	10'	To curb	95%	Maj. Asym.	PBS/PSE	Dead	Serpentine	NAD	Restricted	Bark beetle infestation.	Significant	Dying	Non-viable	Consider Removal and replacement
East of 110th	750	WRC/Tp	8.3"	1.0	6'	6'	6'	6'	To curb	85%	Gen. Sym.	Dense	Healthy	Straight	NAD	-		Significant	Excellent	Viable	Potential to retain with Tree Protection Measures

2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
TREE LOCATION	TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	% LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	RECOMMENDATION
East of 110th	751	DF/Pm	10.0"	1.0	10'	10'	10'	10'	To curb	45%	Gen. Sym.	Average	Average	Straight	NAD	-		Significant	Good	Viable	Potential to retain with Tree Protection Measures
East of 110th	752	PM/Am	14.3"	0.0	12'	12'	12'	12'	To curb	70%	Min. Asym.	Fusarium Wilt	Healthy	Bowed west	Base rot	Possible Root Rot	Second trunk removed at base decades ago. Open wound south side 4.5 feet to 5 feet.	Significant	Poor	Non-viable	Remove for Safety
East of 110th	753	DF/Pm	35.3"	13.0	30'	30'	30'	30'	To curb	50%	Min. Asym.	Dense	Healthy	Straight	NAD	-	Early bark beetle infestation.	Significant	Very good	Viable	Potential to retain with Tree Protection Measures
East of 110th	754	DF/Pm	27.4"	9.0	26'	26'	26'	26'	To curb	80%	Maj. Asym.	Dense	Healthy	Bowed	NAD	-	Early bark beetle infestation.	Significant	Good	Viable	Potential to retain with Tree Protection Measures
East of 110th	755	DF/Pm	40.4"	16.0	38'	38'	38'	38'	To curb	90%	Gen. Sym.	Dense	Healthy	Straight	NAD	Restricted	Early bark beetle infestation.	Significant	Excellent	Viable	Potential to retain with Tree Protection Measures
East of 110th	756	PM/Am	18.6"	0.0	12'	12'	12'	12'	12'	70%	Min. Asym.	Average	Average	Leans South, Center Rot, Serpentine	Base rot	Possible Root Rot	Natrassia cankers on trunk.	Significant	Poor	Non-viable	Remove for Safety
East of 110th	757	PM/Am	11.0"	0.0	10'	10'	10'	10'	10'	25%	Maj. Asym.	Average	Average	Bowed, Typical	Base rot	Root Rot	Open wound SW side base up 1 foot with advanced decay. Natrassia cankers on trunk.	Significant	Poor	Non-viable	Remove for Safety

2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
TREE LOCATION	TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	% LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	RECOMMENDATION
East of 110th	758	RO/Qr	11.5"	1.0	10'	10'	10'	10'	10'	85%	Min. Asym.	ABS/ASE	Regen - Healthy	Typical	NAD	Restricted		Significant	Good	Viable	Potential to retain with Tree Protection Measures
NE 53rd between Sw and fence	759	DF/Pm	30.9"	0.0	16'	16'	To side walk	16'	16'	65%	Min. Asym.	Short shoot elongation	Weak	Fork at 8' w/ include bark to base	NAD	Restricted	Dead branches in canopy. Carpenter Ant infestation and woodpecker activity in bark only. Sap flow from branch collar wounds.	Significant	Poor	Non-viable	Remove for Safety
NE 53rd between Sw and fence	760	DF/Pm	43.0"	17.0	28'	28'	To side walk	To side walk	28'	95%	Gen. Sym.	Average	Average	Straight	NAD	Restricted	Carpenter Ant infestation ad Woodpecker activity in bark only.	Significant	Very good	Viable	Potential to retain with Tree Protection Measures
NE 53rd between Sw and fence	761	POC/Cl	10.5"	1.0	10'	10'	10'	10'	10'	95%	Gen. Sym.	Dense	Healthy	Straight	NAD	Restricted		Significant	Excellent	Viable	Potential to retain with Tree Protection Measures
NE 53rd between Sw and fence	762	WF/Ac	10.9"	1.0	12'	To side walk	12'	12'	12'	98%	Gen. Sym.	Thin	Healthy	Straight	NAD	-	Spider mite infestation.	Significant	Good	Viable	Potential to retain with Tree Protection Measures
NE 53rd between Sw and fence	763	DF/Pm	13.1"	2.0	12'	12'	To side walk	12'	12'	90%	Maj. Asym.	Dense	Healthy	Slight Bow	NAD	-		Significant	Good	Viable	Potential to retain with Tree Protection Measures

2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
TREE LOCATION	TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	% LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	RECOMMENDATION
NE 53rd between Sw and fence	764	DF/Pm	16.2"	4.0	12'	12'	To side walk	12'	12'	85%	Min. Asym.	Dense	Healthy	Straight	NAD	-		Significant	Very good	Viable	Potential to retain with Tree Protection Measures
NE 53rd between Sw and fence	765	DF/Pm	15.1"	3.0	12'	12'	To side walk	12'	12'	70%	Min. Asym.	Dense	Healthy	Straight	NAD	-		Significant	Good	Viable	Potential to retain with Tree Protection Measures
NE 53rd between Sw and fence	766	WRC/Tp	9.3"	1.0	12'	12'	To side walk	12'	12'	70%	Maj. Asym.	Dense	Average	Straight	NAD	-		Significant	Fair	Viable	Potential to retain with Tree Protection Measures
NE 53rd between Sw and fence	767	WRC/Tp	13.0"	2.0	12'	12'	To side walk	12'	12'	80%	Min. Asym.	Dense	Healthy	Straight	NAD	-		Significant	Good	Viable	Potential to retain with Tree Protection Measures
NE 53rd between Sw and fence	768	WRC/Tp	8.0"	1.0	9'	9'	To side walk	9'	9'	50%	Maj. Asym.	Dense	Over topped	Straight	NAD	-	Open wound east side base up 12 inches.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
NE 53rd between Sw and fence	769	DF/Pm	18.6"	5.0	16'	16'	To side walk	16'	16'	70%	Min. Asym.	Dense	Healthy	Straight	Slight Bow	Restricted		Significant	Very good	Viable	Potential to retain with Tree Protection Measures
NE 53rd between Sw and fence	770	DF/Pm	10.1"	1.0	10'	10'	To side walk	10'	10'	70%	Maj. Asym.	Average	Over topped	Straight	NAD	Restricted		Significant	Fair	Viable	Potential to retain with Tree Protection Measures

2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
TREE LOCATION	TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	% LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	RECOMMENDATION
NE 53rd between Sw and fence	771	DF/Pm	17.9"	4.0	18'	18'	To side walk	18'	18'	85%	Min. Asym.	Dense	Healthy	Straight	NAD	Restricted		Significant	Very good	Viable	Potential to retain with Tree Protection Measures
NE 53rd between Sw and fence	772	DF/Pm	12.3"	2.0	12'	12'	To side walk	12'	12'	80%	Min. Asym.	Dense	Healthy	Kink at 6' - 9'	Partially exposed	Restricted		Significant	Fair	Viable	Potential to retain with Tree Protection Measures
NE 53rd between Sw and fence	773	DF/Pm	38.8"	15.0	28	To the existing fence	To side walk	28'	28'	95%	Min. Asym.	Dense	Healthy	Straight	NAD	Restricted	Early bark beetle infestation.	Significant	Very good	Viable	Potential to retain with Tree Protection Measures
NE 53rd between Sw and fence	774	DF/Pm	28.4"	10.0	26	To the existing fence	To side walk	26'	26'	75%	Min. Asym.	Dense	Regen - Healthy	Slight lean N	NAD	Restricted	Early bark beetle infestation.	Significant	Good	Viable	Potential to retain with Tree Protection Measures
NE 53rd between Sw and fence	775	DF/Pm	27.4"	9.0	26	To the existing fence	To side walk	26'	26'	55%	Maj. Asym.	Dense	Healthy	Serpentine	NAD	Restricted	Early bark beetle infestation.	Significant	Good	Viable	Potential to retain with Tree Protection Measures
NE 53rd between Sw and fence	776	PDw/Cn	33.2"	12.0	22	To the existing fence	To side walk	22'	22'	40%	Min. Asym.	Dense	Healthy	Center rot	Base rot	Restricted	Stump sprouts. Trunk diameters are 10.1, 3.3", 8.3", 7.4", 4.7", 9.2", 4.3", 3.3", 4.7", 8.1", 3.6", 7.8", 11.2", 14.8", 4.6", 9.4", & 11.3", = single trunk of 33.2".	Significant	Fair	Viable	Potential to retain with Tree Protection Measures

2	3	4	5	6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
TREE LOCATION	TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	% LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	RECOMMENDATION
NE 53rd between Sw and fence	777	PDw/ Cn	32.6"	12.0	22	To the existing fence	To side walk	22'	22'	90%	Maj. Asym.	ABS/ASE	Average	Center rot	Base rot	Restricted	Stump sprouts. Trunk diameters are 8.8", 7.1", 6.0", 12.3", 8.3", 6.5", 4.8", 6.6", 8.5", & 22.3" = single trunk of 29.7 inches.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
NE 53rd between Sw and fence	778	DF/P m	29.7"	10.0	26	To the existing fence	To side walk	26'	To curb	98%	Min. Asym.	Dense	Healthy	Straight	NAD	Restricted	Sap flow from calloused wound on south side from 9 to 11 feet. Early bark beetle infestation.	Significant	Good	Viable	Potential to retain with Tree Protection Measures
				384.0	**Total tree credits of the 178 trees evaluated and documented.**																

ATTACHMENT 3 - GLOSSARY

Terms Used in This Report, on the Tree Condition / Inventory Spreadsheet, and Their Significance

In an effort to clearly present the information for each tree in a manner that facilitates the reader's ability to understand the conclusions I have drawn for each tree, I have collected the information in a spreadsheet format. This spreadsheet was developed by Gilles Consulting based upon the *Tree Risk Assessment in Urban Areas and the Urban/Rural Interface* course manual and the *Tree Risk Assessment Form*, both sponsored by the Pacific Northwest Chapter of the International Society of Arboriculture, and the *Hazard Tree Evaluation Form* from the book, *The Evaluation of Hazard Trees in Urban Areas*, by Matheny and Clarke. The descriptions were left brief on the spreadsheet in an effort to include as much pertinent information as possible, to make the report manageable, and to avoid boring the reader with infinite levels of detail. However, a review of these terms and descriptions will allow the reader to rapidly move through the report and understand the information.

1) **PROPERTY**—Whether the tree is on or off the Subject Property, or a Right-of-Way tree.
2) **TREE LOCATION**—Relative placement of the tree.
3) **TREE #**—the unique tag number of each tree.
4) **SPECIES**—this describes the species of each tree with both most readily accepted common name and the officially accepted scientific name.
5) **DBH**—Diameter Breast Height. This is the standard measurement of trees taken at 4.5 feet above the average ground level of the tree base.
    i) Occasionally it is not practical to measure a tree at 4.5 feet above the ground. The most representative area of the trunk near 4.5 feet is then measured and noted on the spreadsheet. For instance, a tree that forks at 4.5 feet can have an unusually large swelling at that point. The measurement is taken below the swelling and noted, e.g. '28.4" at 36"'.
    ii) Trees with multiple stems are listed as a "clump of x," with x being the number of trunks in the clump. Measurements may be given as an average of all the trunks, or individual measurements for each trunk may be listed.
        (1) Every effort is made to distinguish between a single tree with multiple stems and several trees growing close together at the bases.
6) **TREE CREDIT**—Tree Credit based on Trunk Diameter
7) **DRIP LINE**— the radius, the distance from the trunk to the furthest branch tips.
8) **LIMITS OF DISTURBANCE**— The boundary between the area of minimum protection around a tree and the allowable site disturbance as determined by a qualified professional. Distances from the center of the trunk were derived on a case by case basis looking at the unique circumstances of each property and each tree on that property.

9) **% LCR**—Percentage of Live Crown Ratio. The relative proportion of green crown to overall tree height. This is an important indication of a tree's health. If a tree has a high percentage of Live Crown Ratio, it is likely producing enough photosynthetic activity to support the tree. If a tree has less than 30% to 40% LCR, it can create a shortage of needed energy and can indicate poor health and vigor.
10) **SYMMETRY**—is the description of the form of the canopy, i.e., the balance or overall shape of the canopy and crown. This is the place I list any major defects in the canopy shape, e.g. does the tree have all its foliage on one side or in one unusual area? Symmetry can be important if there are additional defects in the tree such as rot pockets, cracks, loose roots, weak crown, etc. Symmetry is generally categorized as Generally Symmetrical, Minor Asymmetry or Major Asymmetry:
    i) Gen. Sym.—Generally Symmetrical. The canopy/foliage is generally even on all sides with spacing of scaffold branches typical for the species, both vertically and radially.
    ii) Min. Asym.—Minor Asymmetry. The canopy/foliage has a slightly irregular shape with more weight on one side, but appears to be no problem for the tree.
    iii) Maj. Asym.—Major Asymmetry. The canopy/foliage has a highly irregular shape for the species with the majority of the weight on one side of the tree. This can have a significant impact on the tree's stability, health and hazard potential—especially if other defects are noted such as cracks, rot, or root defects.
11) **FOLIAGE/BRANCH**—describes the foliage of the tree in relation to a perfect specimen of that particular species. First the branch growth and foliage density is described, and then any signs or symptoms of stress and/or disease are noted. The condition of the foliage, or the branches and buds for deciduous trees in the dormant season, are important indications of a tree's health and vigor.
    i) For Deciduous trees in the dormant season:
        (1) The structure of the deciduous tree is visible.
        (2) The quantity and quality of buds indicates health, and is described as good bud set, average bud set, or poor bud set. These are abbreviated in the spreadsheet as: gbs, abs, or PBS.
        (3) The amount of annual shoot elongation is visible and is another major indication of tree health and vigor. This is described as:
            a) Excellent, Good, Average, or Short Shoot Elongation. These are abbreviated in the spreadsheet as ESE, GSE, ASE, or SSE.
    ii) For evergreen trees year round and deciduous trees in leaf, the color and density of the foliage indicates if the tree is healthy or stressed, or if an insect infestation, a bacterial, fungal, or viral infection is present. Foliage is categorized on a scale from:
        (1) Dense—extremely thick foliage, an indication of healthy vigorous growth,
        (2) Good—thick foliage, thicker than average for the species,

(3) Normal/Average—thick foliage, average for the species, an indication of healthy growth,
(4) Thin or Thinning—needles and leaves becoming less dense so that sunlight readily passes through; an indication that the tree is under serious stress that could impact the long-term survivability and safety of the tree,
(5) Sparse—few leaves or needles on the twigs, an indication that the tree is under extreme stress and could indicate the future death of the tree,
(6) Necrosis—the presence of dead twigs and branchlets. This is another significant indication of tree health. A few dead twigs and branches are reasonably typical in most trees of size. However, if there are dead twigs and branchlets all over a certain portion of the tree, or all over the tree, these are indications of stress or attack that can have an impact on the tree's long-term health.
(7) Hangers—a term to describe a large branch or limb that has broken off but is still hanging up in the tree. These can be particularly dangerous in adverse weather conditions.

12) **CROWN CONDITION**—the crown is uppermost portion of the tree, generally considered the top 10 to 20% of the canopy or that part of the canopy above the main trunk in deciduous trees and above the secondary bark in evergreen trees.
   i) The condition of the tree's crown is a reflection of the overall health and vigor of the entire tree. The crown is one of the first places a tree will demonstrate stress and pathogenic attack such as root rot.
   ii) If the **Crown Condition** is healthy and strong, this is a good sign. If the crown condition is weak, broken out, or shows other signs of decline, it is an indication that the tree is under stress. It is such an important indication of health and vigor that this is the first place a trained forester or arborist looks to begin the evaluation of a tree. Current research reveals that, by the time trees with root rot show significant signs of decline in the crown, fully 50% or more of the roots have already rotted away. **Crown Condition** can be described as:
      (1) Healthy Crown—exceptional growth for the species.
      (2) Average Crown—typical for the species.
      (3) Weak Crown—thin spindly growth with thin or sparse needles.
      (4) Flagging Crown—describes a tree crown that is weak and unable to grow straight up.
      (5) Dying Crown—describes obvious decline that is nearing death.
      (6) Dead Crown—the crown has died due to pathological or physical injury. The tree is considered to have significant stress and/or weakness if the crown is dead.
      (7) Broken out—a formerly weak crown condition that has been broken off by adverse weather conditions or other mechanical means.

(8) Regenerated or Regenerating—formerly broken out crowns that are now growing back. Regenerating crowns may appear healthy, average, or weak and indicate current health of the tree.

(9) Suppressed—a term used to describe poor condition of an entire tree or just the crown. Suppressed crowns are those that are entirely below the general level of the canopy of surrounding trees which receive no direct sunlight. They are generally in poor health and vigor. Suppressed trees are generally trees that are smaller and growing in the shade of larger trees around them. They generally have thin or sparse needles, weak or missing crowns, and are prone to insect attack as well as bacterial and fungal infections.

13) **TRUNK**—this is the area to note any defects that can have an impact on the tree's stability or hazard potential. Typical things noted are:

i) FORKED—bifurcation of branches or trunks that often occur at a narrow angle.

ii) INCLUDED BARK—a pattern of development at branch or trunk junctions where bark is turned inward rather than pushed out. This can be a serious structural defect in a tree that can and often does lead to failure of one or more of the branches or trunks, especially during severe, adverse weather conditions.

iii) EPICORMIC GROWTH—this is generally seen as dense thick growth near the trunk of a tree. Although this looks like a healthy condition, it is, in fact the opposite. Trees with Epicormic Growth have used their reserve stores of energy in a last ditch effort to produce enough additional photosynthetic surface area to produce more sugars, starches and carbohydrates to support the continued growth of the tree. Generally speaking, when conifers in the Pacific Northwest exhibit heavy amounts of Epicormic Growth, they are not producing enough food to support their current mass and are already in serious decline.

iv) INTERNAL STRUCTURAL WEAKNESS—a physical characteristic of the tree trunk, such as a **kink, crack, rot pocket, or rot column** that predisposes the tree trunk to failure at the point of greatest weakness.

v) BOWED—a gradual curve of the trunk. This can indicate an Internal Structural Weakness or an overall weak tree. It can also indicate slow movement of soils or historic damage of the tree that has been corrected by the curved growth.

vi) KINKED—a sharp angle in the tree trunk that indicates that the normal growth pattern is disrupted. Generally this means that the internal fibers and annual rings are weaker than straight trunks and prone to failure, especially in adverse weather conditions.

vii) GROUND FLOWER—an area of deformed bark near the base of a tree trunk that indicates long-term root rot.

14) **ROOT COLLAR**—this is the area where the trunk enters the soil and the buttress roots flare out away from the trunk into the soil. It is here that signs of rot, decay, insect infestation, or fungal or bacterial infection are noted. **NAD** stands for **N**o **A**pparent **D**efects.
15) **ROOTS**—any abnormalities such as girdling roots, roots that wrap around the tree itself that strangle the cambium layer and kill the tree, are noted here.
16) **COMMENTS**—this is the area to note any additional information that would not fit in the previous boxes or attributes about the tree that have bearing on the health and structure of the tree.
17) **SIGNIFICANCE**—a "significant" tree is at least 6" in diameter measured at 4.5' above the average ground level.
18) **CURRENT HEALTH RATING**— a description of general health ranging from dead, dying, poor, senescent, suppressed, fair, good, very good, to excellent.
19) **VIABILITY—** a significant tree that is in good health with a low risk of failure due to structural defects, is relatively wind firm if isolated or remains as part of a grove, and is a species that is suitable for its location.
    (1) Please note that many trees may be listed as "Non-Viable" due to poor health, poor structure, or the tree may be below the size threshold for a "Viable Tree." However, it is worth examining the Non-Viable Trees to determine if any or all of them can be left on the property. They can add significant benefit to the landscape and contribute to wildlife habitat.
20) **RECOMMENDATION**— this is an estimate of whether or not the tree is of sufficient health, vigor, and structure that it is worth retaining. Specific recommendations for each tree are included in this column. They may include anything from pruning dead wood, mulching, aerating, injecting tree-based fertilizer into the root system, shortening into a habitat tree or wildlife snag, or to completely removing the tree.
    i) **Monitor: "**Monitor" is a specific recommendation that the tree be re-evaluated on a routine basis to determine if there are any significant changes in health or structural stability. "Monitor annually" (or bi-annually, tri-annually, etc.)" means the tree should be looked at once every year (or every 2 or 3 years, etc.) This yearly monitoring can be a quick look at the trees to see if there are any significant changes. Significant changes such as storm damage, loss of crown, partial failure of one or more roots, etc. require that a full evaluation be done of the tree at that time.
    ii) **Potential to retain with tree protection measures:** means that the tree appears to have the internal resources, the health and vigor, structural stability, and the wind firmness to be able to withstand the stresses of construction if development requirements and construction requirements allow.
    iii) **Habitat or Remove:** means that the tree has a high potential to fail and cause either personal injury or property damage—in other words the tree has been declared a hazard tree and should be dealt with prior to the next large storm.

If it is at all possible the recommendation is to leave some of the trunk standing for wildlife habitat and some of the trunk on the ground as a nurse log. The height of the standing habitat tree depends upon the size of the tree, the condition of the tree, and the distance to a probable target. It should be short enough so that when it does fail years in the future it will not cause personal injury or property damage. Nurse logs can be laid horizontally across the slope to aid with erosion control and to provide microenvironments for new plantings. The nurse logs meaning to be steak to prevent their movement and potential harm to people. If for some reason this is not possible that should be removed for safety.

NOTE: TREES WITH THE SAME DESCRIPTION AND DIFFERENT RATINGS: Two trees may have the same descriptions in the matrix boxes, one may be marked "Significant," while another may be marked "Non-Significant." The difference is in the degree of the description, i.e., "early necrosis" versus "advanced necrosis" for instance. Another example is "center rot" or 'base rot". In a Western Red Cedar tree, the presence of low or even moderate rot is not significant and does not diminish the strength of the tree. However, low levels of rot in the base of a Douglas Fir tree, in an area known to have virulent pathogens present, is highly significant and predisposes that tree to windthrow.

ATTACHMENT 4 - TREE PROTECTION MEASURES

In order for trees to survive the stresses placed upon them in the construction process, tree protection must be planned in advance of equipment arrival on site. If tree protection is not planned integral with the design and layout of the project, the trees will suffer needlessly and will possibly die. With proper preparation, often costing little, or nothing extra to the project budget, trees can survive and thrive after construction. This is critical for tree survival because damage prevention is the single most effective treatment for trees on construction sites. Once trees are damaged, the treatment options available are limited.

The following minimum Tree Protection Measures are included on three separate sheets so that they can be copied and introduced into all relevant documents such as site plans, permit applications and conditions of approval, and bid documents so that everyone involved is aware of the requirements. These Tree Protection Measures are intended to be generic in nature. They will need to be adjusted to the specific circumstances of your site that takes into account the location of improvements and the locations of the trees.

TREE PROTECTION MEASURES:

1. Tree Protection Fences will need to be placed around each tree or group of trees to be retained.
    a. Tree Protection Fences are to be placed according to the attached drawing and as noted in the attached Tree Inventory/Conditions Spreadsheet, Column 6 - Limits of Disturbance.
    b. Tree Protection Fences must be inspected prior to the beginning of any construction work/activities.
    c. Nothing must be parked or stored within the Tree Protection Fences—no equipment, vehicles, soil, debris, or construction supplies of any sorts.

2. Cement trucks must not be allowed to deposit waste or wash out materials from their trucks within the Tree Protection Fences.

3. The Tree Protection Fences need to be clearly marked with the following or similar text in four inch or larger letters:

TREE PROTECTION AREA, ENTRANCE PROHIBITED
To report violations contact
City Code Enforcement at
425-587-3225

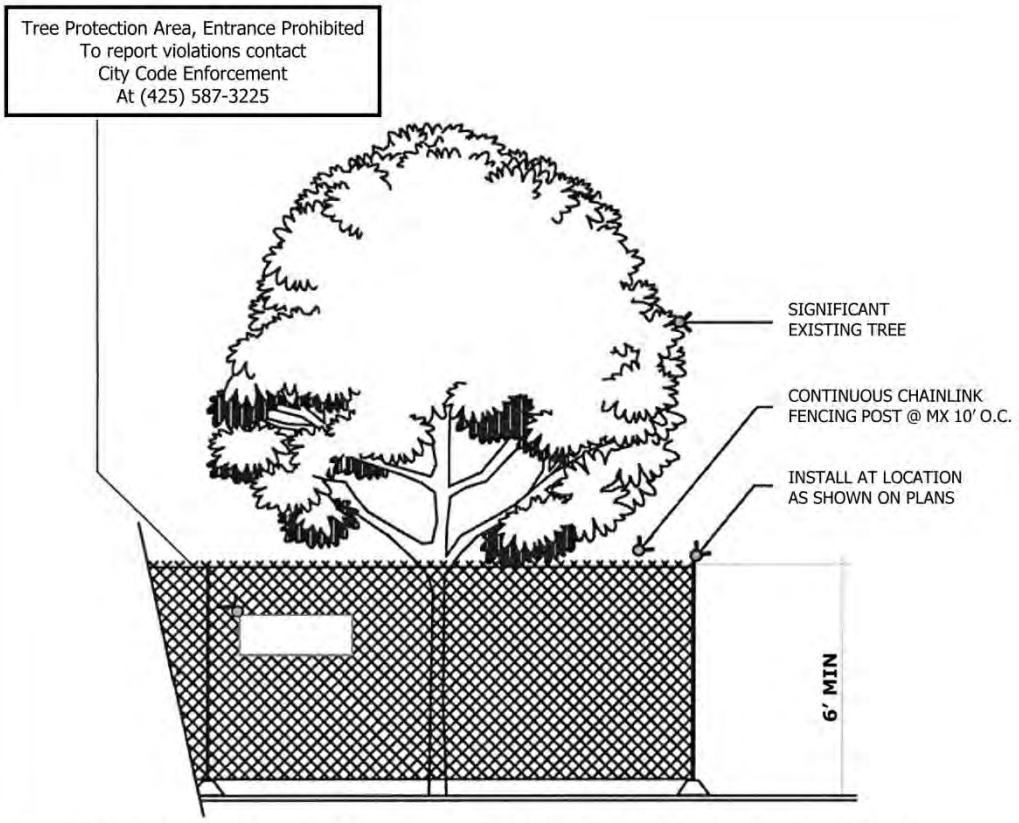
4. The area within the Tree Protection Fencing must be covered with wood chips, hog fuel, or similar materials to a depth of 8 to 10 inches. The materials should be placed prior to beginning construction and remain until the Tree Protection Fencing is taken down.

5. When excavation occurs near trees that are scheduled for retention, the following procedure must be followed to protect the long term survivability of the tree:
    a. An International Society of Arboriculture, (ISA) Certified Arborist must be working with all equipment operators.
        i. The Certified Arborist should be outfitted with a shovel, hand pruners, a pair of loppers, a handsaw, and a power saw (a "sawsall" is recommended).
    b. The hoe must be placed to "comb" the material directly away from the trunk as opposed to cutting across the roots.
        i. Combing is the gradual excavation of the ground cover plants and soil in depths that only extend as deep as the tines of the hoe.
    c. When any roots of one inch diameter or greater, of the tree to be retained, is struck by the equipment, the Certified Arborist should stop the equipment operator.
    d. The Certified Arborist should then excavate around the tree root by hand/shovel and cleanly cut the tree root.

i. The Certified Arborist should then instruct the equipment operator to continue.

6. Putting Utilities Under the Root Zone:
    a. Boring under the root systems of trees (and other vegetation) shall be done under the supervision of an ISA Certified Arborist. This is to be accomplished by excavating a limited trench or pit on each side of the critical root zone of the tree and then hand digging or pushing the pipe through the soil under the tree. The closest pit walls shall be a minimum of 7 feet from the center of the tree and shall be sufficient depth to lay the pipe at the grade as shown on the plan and profile.
    b. Tunneling under the roots of trees shall be done under the supervision of an ISA Certified Arborist in an open trench by carefully excavating and hand digging around areas where large roots are exposed. No roots 1 inch in diameter or larger shall be cut.
    c. The contractor shall verify the vertical and horizontal location of existing utilities to avoid conflicts and maintain minimum clearances; adjustment shall be made to the grade of the new utility as required.

7. Watering:
    a. The trees will require significant watering throughout the summer and early fall in order to survive long-term. An easy and economical watering can be done using soaker hoses placed three feet from the trunk of the tree and spiraled around the tree. One 75-foot soaker hose per tree is adequate. It is best to place the soakers using landscape staples, (available from HD Fowler in Bellevue for pennies apiece) then cover the area with two to three inches composed materials. The composted material will act as a mulch to minimize evaporation and will also stimulate the microbial activity of the soil which is another benefit to the health of the tree.
    b. Water the tree to a depth of 18 to 20 inches. I recommended leaving the water on the soaker hoses for six to eight hours and then digging down to determine how deep your water is penetrating. Then adjust accordingly. It may take a good two days of watering to reach the proper depth.
    c. Once the water reaches the proper depth, turn off the hoses for four weeks and then water again. Water more often when temperatures increase—every three weeks when temperatures exceed 80 degrees and every two weeks when temperatures exceed 90 degrees. This drying out of the soil in between watering is important to prevent soil pathogens from attacking the trees.



1. MINIMUM SIX (6) FOOT HIGH TEMPORARY CHAINLINK FENCE SHALL BE PLACED AT THE CRITICAL ROOT ZONE OR DESIGNATED LIMIT OF DISTURBANCE OF THE TREE TO BE SAVED. FENCE SHALL COMPLETELY ENCIRCLE TREE(S). INSTALL FENCE POSTS USING PIER BLOCK ONLY. AVOID POST OR STAKES INTO MAJOR ROOTS. MODIFICATIONS TO FENCING MATERIAL AND LOCATION MUST BE APPROVED BY PLANNING OFFICIAL.

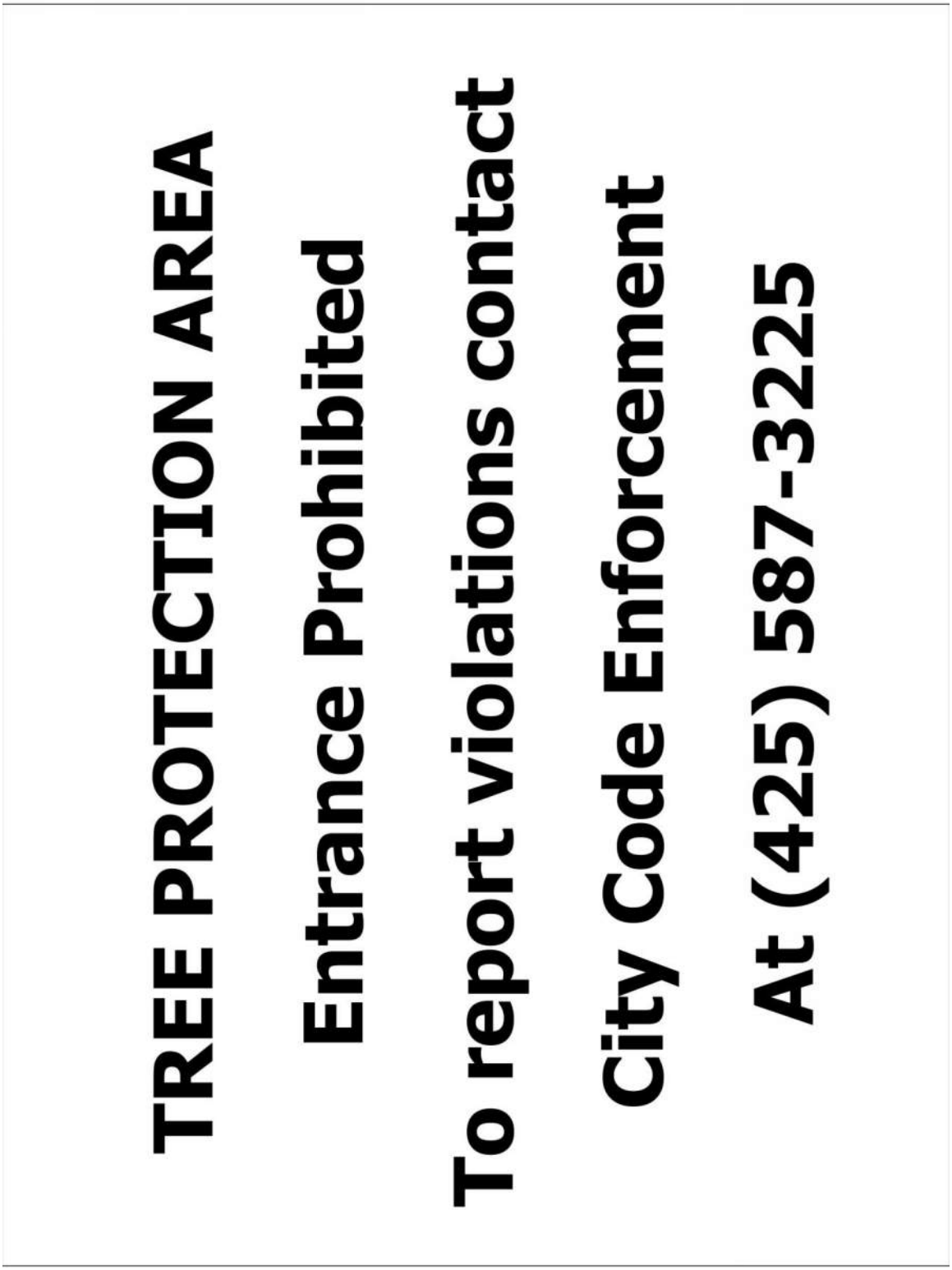
2. TREATMENT OF ROOTS EXPOSED DURING CONSTRUCTION: FOR ROOTS OVER ONE (1) INCH DIAMETER DAMAGED DURING CONSTRUCTION, MAKE A CLEAN STRAIGHT CUT TO REMOVE DAMAGED PORTION OF ROOT. ALL EXPOSED ROOTS SHALL BE TEMPORARILY COVERED WITH DAMP BURLAP TO PREVENT DRYING AND COVERED WITH SOIL AS SOON AS POSSIBLE.

3. NO STOCKPILING OF MATERIALS, VEHICULAR TRAFFIC, OR STORAGE OF EQUIPMENT OR MACHINERY SHALL BE ALLOWED WITHIN THE LIMIT OF THE FENCING. FENCING SHALL NOT BE MOVED OR REMOVED UNLESS APPROVED BY THE CITY PLANNING OFFICIAL. WORK WITHIN PROTECTION FENCE SHALL BE DONE MANUALLY UNDER THE SUPERVISION OF THE ON-SITE ARBORIST AND WITH PRIOR APPROVAL BY THE CITY PLANNING OFFICIAL.

4. FENCING SIGNAGE AS DETAILED ABOVE MUST BE POSTED EVERY FIFTEEN (15) FEET ALONG THE FENCE.

CITY OF KIRKLAND WASHINGTON

TREE PROTECTION FENCING DETAIL
(for public and private trees)


TREE PROTECTION AREA
Entrance Prohibited
To report violations contact
City Code Enforcement
At (425) 587-3225

ATTACHMENT 5 - REFERENCES

1. Dirr, Michael A. *Manual of Woody Landscape Plants, Their Identification, Ornamental Characteristics, Culture, Propagation, and Uses*. Champaign: Stipes Publishing Company, 1990.

2. Dunster, Dr. Julian A., R.P.F., M.C.I.P. *Documenting Evidence, Practical Guidance for Arborists*, First Choice Books, Victoria, BC, Canada. 2014.

3. Eric Allen, et al. *Common Tree Diseases of British Columbia*. Victoria: Canadian Forest Service, 1996.

4. Harris, Richard W, James Clark, and Nelda Matheny. *Arboriculture, Integrated Management of Landscape Trees, Shrubs, and Vines*. 4th ed. Upper Saddle River: Prentice Hall, 2004.

5. Johnson, Warren T. and Lyon, Howard H. *Insects That Feed on Trees and Shrubs*. Ithaca: Comstock Publishing Associates, 1991.

6. Link, Russell, *Landscaping for Wildlife in the Pacific Northwest,* The University of Washington Press, Seattle, WA. 1999.

7. Matheny, Nelda P. and Clark, James R. *Evaluation of Hazard Trees*. 2nd ed. Savoy: The International Society of Arboriculture Press, 1994.

8. Matheny, Nelda P. and Clark, James R. *Trees & Development, A Technical Guide to Preservation of Trees During Land Development*. Savoy: The International Society of Arboriculture Press, 1998.

9. Mathews, Daniel. *Cascade -- Olympic Natural History.* Portland, Oregon: Raven Editions with the Portland Audubon Society, 1992.

10. Mattheck, Claus and Breloer, Helge. *The Body Language of Trees, A Handbook for Failure Analysis.* London: HMSO, 1994.

11. Pacific Northwest Chapter-ISA. *Tree Risk Assessment in Urban Areas and the Urban/Rural Interface.* Course Manual. Release 1.5. PNW-ISA: Silverton, Oregon, 2011.

12. Petrides, George A. and Wehr, Janet. *A Field Guide to Eastern Trees, Eastern United States and Canada including the Midwest*. New York: Houghton Mifflin Company, 1998.

13. Scharpf, Robert F. *Diseases of Pacific Coast Conifers*. Albany, California: USDA Forest Service, Agriculture Handbook 521, rev. June 1993.

14. Sinclair, Wayne A., Lyon, Howard H., and Johnson, Warren T. *Diseases of Trees and Shrubs*. Ithaca, New York: Cornell University Press, 1987.

15. Smiley, E. Thomas, Nelda Matheny, and Sharon Lilly, *Tree Risk Assessment Best Management Practices, ANSI A300 Part 9: Tree, Shrub, and Other Woody Plant Management—Standard Practices (Tree Risk Assessment a. Tree Structure Assessment).* The International Society of Arboriculture Press. Champaign. IL. 2011.

16. Watson, Gary W., and Neely, Dan, eds. *Trees & Building Sites*. Savoy: The International Society of Arboriculture Press, 1995.

Gilles Consulting
Brian K. Gilles
425-822-4994

May 25, 2016

John Jordon
Northwest University
C/o Gelotte Hommas Architecture
5520 108th Avenue NE
Kirkland, WA 98033

Subject: Summary of Trees on the Slope North of the Athletic Fields

Dear Mr. Jordon:

As you requested, this letter is to summarize for you and your design team some preliminary data about the trees on the slope north of the athletic fields. Neighbors to the north are concerned about some of the proposed upgrades to the property and the design team is considering options for management of these trees.

What follows are some generic comments about these trees:

- There are approximately 100 trees north of the athletic field fence.
- Species:

SPECIES SUMMARY		
Species	**# of Trees > 6" DBH**	**%**
Douglas Fir	62	68.1%
Western Red Cedar	4	4.4%
Grand Fir	12	13.2%
Engelmann Spruce	10	11.0%
Bitter Cherry	1	1.1%
Colorado Blue Spruce	1	1.1%
Leyland Cypress	1	1.1%
Total:	**91**	**100.0%**

- The two largest trees are a pair of Douglas Fir trees near the northwest corner of the area.
    - There are over 21-inches in diameter at 4.5 feet above the average ground level and are approximately 84 feet tall.

fax: 425-822-6314
email: bkgilles@comcast.net
P.O. Box 2366 Kirkland, WA 98083

- The trees at the top of the slope, nearest the fence range from 64 feet tall to over 84 feet tall.
- The diameters average between 12 and 16 inches at 4.5 feet.
- All of the trees appear to be in Good to Excellent Condition.
- All of the trees appear to be wind firm.
- All of the trees appear to have sound structural integrity.
- Canopies:
    - The canopies of the trees near the black chain link fence that borders the athletic field have been pruned to a height slightly above the 6-foot tall fence.
    - There are several trees closer to the northern property line that have canopies that reach all the way to the ground or nearly so.
- Screening Efforts:
    - There have been three obvious things done in an effort to increase the screening between the athletic field and the homes to the north.
    - First:
        - The first approximately 200 feet of the chain link fence has been hung with a black plastic mesh to improve screening.
    - Second:
        - A row of Emerald Green Pyramidalis, Arborvitae, was planted immediately north of the black chain link fence.
        - Temporary irrigation is still in evidence.
        - The majority of the plants are alive and thriving. Several have died.
    - Third, there is a row of 11 living Western Red Cedar Trees planted approximately 12 feet north of the Emerald Green Pyramidalis hedge.
        - They also received temporary irrigation.
        - There appear to have been several more of these trees in the row that did not survive and were subsequently removed.

Photo # 1: A panoramic photos of the approximately 100 trees north of the athletic field.

This photo shows that this stand of trees is likely meeting the design intent of when the trees were planned and installed.

Photo # 2: A screen shot of a Google Earth image of the athletic field and the surrounding neighborhood. The row of trees are these along the north property line.

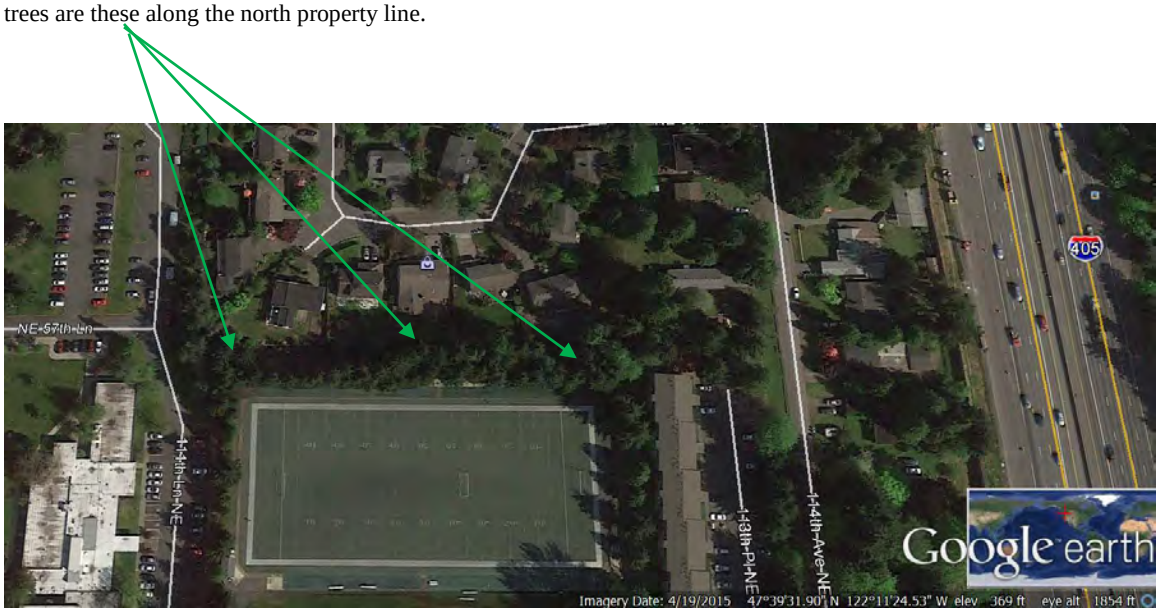


Photo # 3: A panoramic photo looking from near the NE corner of the athletic field at the row of trees on the west facing slope above the parking lots.

Photo # 4: A panoramic photo looking from near the north-central portion of the athletic field looking at the eastern property line and the row of trees.

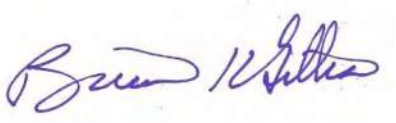
MANAGEMENT OPTIONS

I understand that sunlight is one of the concerns of the neighbors as is noise from the athletic field. Unfortunately these two issues can be in conflict in how the trees are managed. A few options could include:

- Selectively pruning windows in the canopies of specific trees to allow increased sunlight onto desired places of the homes to the north such as decks, gardens, and windows.
    - The down side of this of course that potential to allow more sound waves to pass through too.
- A long term plan could be initiated, say over a 10 or 12 year period to replace the existing trees with smaller stature trees and tall shrubs that could increase the density of foliage for approximately 30 feet or less.
    - This palate of plants could be installed now under the existing trees. With adequate irrigation and care they should be established in two or three years. In 10 or 12 years they could be large enough to provide adequate sound and visual screening.
    - The large trees could then be removed.
    - Details of this potential idea would need to be discussed with the City and the neighbors.

Thank you for calling Gilles Consulting for your arboricultural needs.

Sincerely,



Brian K. Gilles, Consulting Arborist
ISA Certified Arborist # PN-0260
ASCA Registered Consulting Arborist # RCA-418A
PNW-ISA Certified Tree Risk Assessor #148